WEST

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Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences

Search Results -

Terms	Documents
(crustacean? and fish)and (feedstuff)	19

Database: US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
EPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Refine Search: (crustacean? and fish)and (feedstuff) Clear

Search History

Today's Date: 4/3/2001

DB Name	Query	Hit Count	Set Name
USPT	(crustacean? and fish)and (feedstuff)	19	L13
USPT	(crustaceans? and fish)and (feedstuff)	0	L12
USPT	(crustaceans? and fish)and (feed)	0	L11
USPT	(crustaceans?)and (immunity)	0	L10
USPT	(crustaceans?)and (pantoea)	0	L9
USPT	(crustaceans?)and (gram negative bacteria?)	2	L8
USPT	(crustacens?)and (gram negative bacteria?)	0	L7
USPT	(crustacens?)and (pantoea)	0	L6
USPT	(crustac?)and (pantoea)	0	L5
USPT	(gram negative bacteria) AND (fish)	16194	L4
USPT	(gram negative bacteria) AND (fish)	16194	L3
USPT	(gram negative bacteria)[AB] AND (fish)[AB]	65	L2
USPT	(gram negative bacteria)[AB] AND (fish)	945	L1

WEST

Freeform Search

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JPO Abstracts Database
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Derwent World Patents Index
IBM Technical Disclosure Bulletins

Term: (crustacean? and fish)and (lipopolysaccharide)

Display: 10 **Documents in Display Format:** CIT **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Image

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Main Menu | Show S Numbers | Edit S Numbers | Preferences

Search History

Today's Date: 4/3/2001

DB Name	Query	Hit Count	Set Name
USPT	(crustacean? and fish)and (lipopolysaccharide)	8	L14
USPT	(crustacean? and fish)and (feedstuff)	19	L13
USPT	(crustaceans? and fish)and (feedstuff)	0	L12
USPT	(crustaceans? and fish)and (feed)	0	L11
USPT	(crustaceans?)and (immunity)	0	L10
USPT	(crustaceans?)and (pantoea)	0	L9
USPT	(crustaceans?)and (gram negative bacteria?)	2	L8
USPT	(crustacens?)and (gram negative bacteria?)	0	L7
USPT	(crustacens?)and (pantoea)	0	L6
USPT	(crustac?)and (pantoea)	0	L5
USPT	(gram negative bacteria) AND (fish)	16194	L4
USPT	(gram negative bacteria) AND (fish)	16194	L3
USPT	(gram negative bacteria)[AB] AND (fish)[AB]	65	L2
USPT	(gram negative bacteria)[AB] AND (fish)	945	L1

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Search Results - Record(s) 1 through 10 of 42 returned.

☐ 1. 5494819 . 12 Apr 94; 27 Feb 96. Pure culture of Pantoea agglomerans ferm BP-3511. Soma; Gen-Ichiro, et al. 435/252.1; 435/243 435/253.6 514/54 514/885. C12N001/00 C12N001/20.

☐ 2. 5413993 . 20 Aug 92; 09 May 95. Method for the treatment of narcotic withdrawal symptoms in animals using lipopolysaccharides. Soma; Gen-Ichiro, et al. 514/54; 424/93.4 424/93.48 435/252.31 435/252.5 435/822 514/885. A61K031/715 A61K037/00 C12N001/20.

☐ 3. 5382430 . 14 Dec 92; 17 Jan 95. Method for the stimulation of the immune system of an animal by use of limulus test-positive plant glycolipid. Soma; Gen-Ichiro, et al. 424/195.15; 424/195.17 424/750 514/783. A61K035/78.

☐ 4. 5346891 . 20 Aug 91; 13 Sep 94. Lipopolysaccharide-producing bacteria, lipopolysaccharides, and lipopolysaccharide-containing, medicines and veterinary medicines. Soma; Gen-Ichiro, et al. 514/54; 435/243 435/252.1 435/252.5 514/885. A61K031/715 C12N001/00 C12N001/20.

☐ 5. 5281583 . 22 Aug 91; 25 Jan 94. LPS-containing analgesics and veterinary analgesics. Soma; Gen-Ichiro, et al. 514/54;. A61K031/70 A61K031/715.

☐ 6. 5236709 . 06 Feb 90; 17 Aug 93. Limulus test-positive plant glycolipid and method of stimulating the immunity system of an animal. Soma; Gen-Ichiro, et al. 424/195.15; 424/195.17 424/750 514/783. A61R035/78.

☐ 7. 5081021 . 04 Feb 87; 14 Jan 92. DNA encoding HTNF variants exhibiting enhanced activity. Mizuno; Den'ichi, et al. 435/69.5; 435/320.1 435/91.41 536/23.1 536/23.5. C12P021/00 C12P021/02 C07H015/12.

☐ 8. JP 08245702 A . 13 Mar 95. 24 Sep 96. HIGH-MOLECULAR WEIGHT LIPOPOLYSACCHARIDE. MIZUNO, DENICHI, et al. C08B037/00; C12P019/04.

☐ 9. JP 07109285 A . 24 May 91. 25 Apr 95. LIMULUS TEST-POSITIVE PLANT LPS, IMMUNOACTIVATOR, ANTIDIABETIC, ANALGESIC, AND THOSE FOR ANIMALS. SOMA, GENICHIRO, et al. C07G017/00; A61K035/78 A61K035/78 A61K035/78 A61K031/715 C08B037/00.

☐ 10. JP 06263650 A . 02 Dec 91. 20 Sep 94. LPS-CONTAINING ANTITUMOR AGENT AND ANTITUMOR AGENT FOR ANIMAL. SOMA, GENICHIRO, et al. A61K037/20; A61K035/64 A61K035/72 A61K035/78 A61K035/80 A61K035/82.

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Terms	Documents
L3 and LPS	42

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Search Results - Record(s) 11 through 20 of 42 returned.

☐ 11. JP 06141849 A . 30 Oct 92. 24 May 94. LPS PRODUCING BACTERIUM, LPS, IMMUNOLOGICAL FUNCTION ACTIVATOR AND IMMUNOLOGICAL FUNCTION ACTIVATOR FOR ANIMAL. SOMA, GENICHIRO, et al. C12N001/20; A23K001/16 A61K037/20 C08B037/00.

☐ 12. JP 06090745 A . 19 Nov 92. 05 Apr 94. LPS-PRODUCING MICROORGANISM, LPS AND PHARMACEUTICAL AND ANIMAL DRUG CONTAINING LPS. SOMA, GENICHIRO, et al. 424/282.1 435/72. C12N001/20; A61K035/74 A61K037/20 A61K037/20 A61K037/20 A61K037/20 C08B037/00 C12P019/04.

☐ 13. JP 06078756 A . 20 Aug 91. 22 Mar 94. MICROORGANISM CAPABLE OF PRODUCING LPS, LPS AND MEDICINE AND ANIMAL MEDICINE CONTAINING LPS. SOMA, GENICHIRO, et al. 424/278.1 435/252.1. C12N001/20; A61K037/20 A61K037/20 A61K037/20 A61K037/20 C08B037/00 C12P019/04.

☐ 14. JP 06065092 A . 20 Aug 92. 08 Mar 94. ANTI-WITHDRAWAL SYMPTOMATIC AGENT CONTAINING LPS AND ANTI-WITHDRAWAL SYMPTOMATIC AGENT FOR ANIMAL. SOMA, GENICHIRO, et al. A61K037/20; C08B037/00.

☐ 15. JP 06040937 A . 20 Aug 91. 15 Feb 94. ANALGESIC CONTAINING LPS AND ANALGESIC FOR ANIMAL. SOMA, GENICHIRO, et al. A61K037/20; C08B037/00.

☐ 16. JP 05155778 A . 02 Dec 91. 22 Jun 93. GROWTH PROMOTER AND ANIMAL GROWTH PROMOTER CONTAINING LPS. SOMA, GENICHIRO, et al. A61K035/78; A61K035/66 A61K035/80 A61K037/20 A61K037/20.

☐ 17. JP 04187640 A . 22 Nov 90. 06 Jul 92. IMMUNOLOGICAL FUNCTION PROMOTING AGENT FOR ORAL AND TRANSCUTANEOUS ADMINISTRATION AND IMMUNOLOGICAL FUNCTION PROMOTING AGENT FOR ANIMAL FOR ORAL AND TRANSCUTANEOUS ADMINISTRATION. SOMA, GENICHIRO, et al. A61K035/74; A61K035/74.

☐ 18. JP 04099481 A . 20 Aug 90. 31 Mar 92. NOVEL BACTERIUM, NOVEL LPS, NOVEL IMMUNOFUNCTION-ACTIVATING AGENT, NEW IMMUNOFUNCTION-ACTIVATING AGENT FOR ANIMAL. SOMA, GENICHIRO, et al. 435/72 435/252.5. C12N001/20; A61K035/74 A61K039/39.

☐ 19. JP 04049245 A . 15 Jun 90. 18 Feb 92. ANTITOXOPLASMA AGENT AND ANTITOXOPLASMA AGENT FOR ANIMAL. SOMA, GENICHIRO, et al. A61K035/78; A61K035/74 A61K035/78 A61K035/80 A61K035/84.

☐ 20. JP 04049244 A . 15 Jun 90. 18 Feb 92. ANTIDIABETIC AGENT AND ANTIDIABETIC AGENT FOR ANIMAL. SOMA, GENICHIRO, et al. A61K035/78; A61K035/74 A61K035/78 A61K035/80 A61K035/84.

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Search Results - Record(s) 31 through 40 of 42 returned.

☐ 31. JP 07126172 A TW 274517 A . Anti-MRSA drug - contains LPS and veterinary anti-MRSA drug. A61K031/715 A61K031/72 A61K035/66.

☐ 32. JP 07109285 A . Limulus test-positive plant lipid polysaccharide - useful as immunological activator, anti-diabetic agent, analgesic and for quasi-drug cosmetics, foods, soft drinks and feeds. A61K031/715 A61K035/78 C07G017/00 C08B037/00.

☐ 33. JP 06263650 A . Anticancer drug - containing LPS, used for humans and animals. A61K035/64 A61K035/72 A61K035/78 A61K035/80 A61K035/82 A61K037/20.

☐ 34. JP 06141849 A . LPS-producing gram-negative microbe - has high immune function activating ability for animals. A23K001/16 A61K037/20 C08B037/00 C12N001/20 C12N001/20 C12R001:01.

☐ 35. JP 05155778 A . Growth stimulant for animals - contains lipo:polysaccharide which activates macrophage TNF productivity. A61K035/66 A61K035/78 A61K035/80 A61K037/20.

☐ 36. EP 533517 A1 CA 2076505 A JP 06065092 A US 5413993 A . Lipo:polysaccharide-contg. compsns. for treating drug withdrawal symptoms - have higher therapeutic range than e.g. methadone, clonidine and dizocilpine. MIZUNO, D, et al. A61K031/715 A61K035/74 A61K037/00 A61K037/20 C08B037/00 C12N001/20 C12P019/04.

☐ 37. JP 04187640 A . Oral and transdermal immune function accelerating agents - contain pertussis bacteria cell lipopolysaccharide(s). A61K035/74.

☐ 38. EP 477050 A DE 69126183 E EP 477050 A3 EP 477050 B1 . LPS-producing bacteria - has strong immunity-stimulating, analgesic and anti-withdrawal effects. MIZUNO, D, et al. A61K031/735 A61K037/20 A61K037/22 C12N001/20 C12P019/04 C12R001/01 C12N001/20 C12R001:01.

☐ 39. EP 472467 A CA 2049548 C CA 2049533 A CA 2049548 A JP 04099481 A EP 472467 A3 US 5281583 A JP 06040937 A JP 06078756 A JP 06090745 A US 5346891 A US 5494819 A . New analgesic compsns. for human and veterinary use - comprise lipo:polysaccharide(s) having specified macrophage activation. MIZUNO, D, et al. A61K031/70 A61K031/715 A61K035/74 A61K037/20 A61K038/16 A61K039/39 C08B037/00 C12N001/00 C12N001/20 C12P019/04 C12P021/00 C12R001/01 C12N001/20 C12R001:425 C12N001/20 C12R001:01 C12P019/04 C12R001:01 C12N001/20 C12R001:01 C12P019/04 C12R001:01.

☐ 40. EP 462022 A CA 2044808 A EP 462022 A3 JP 04049244 A . Human and veterinary antidiabetic agents - contain lipo:polysaccharide (LPS) from lipid A, vegetable or bacterial sources. MIZUNO, D, et al. A61K035/78 A61K037/18 A61K037/20.

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Terms	Documents
L3 and LPS	42

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Search Results - Record(s) 32 through 41 of 42 returned.

☐ 32. JP 07109285 A . Limulus test-positive plant lipid polysaccharide - useful as immunological activator, anti-diabetic agent, analgesic and for quasi-drug cosmetics, foods, soft drinks and feeds. A61K031/715 A61K035/78 C07G017/00 C08B037/00.

☐ 33. JP 06263650 A . Anticancer drug - containing LPS, used for humans and animals. A61K035/64 A61K035/72 A61K035/78 A61K035/80 A61K035/82 A61K037/20.

☐ 34. JP 06141849 A . LPS-producing gram-negative microbe - has high immune function activating ability for animals. A23K001/16 A61K037/20 C08B037/00 C12N001/20 C12N001/20 C12R001:01.

☐ 35. JP 05155778 A . Growth stimulant for animals - contains lipo:polysaccharide which activates macrophage TNF productivity. A61K035/66 A61K035/78 A61K035/80 A61K037/20.

☐ 36. EP 533517 A1 CA 2076505 A JP 06065092 A US 5413993 A . Lipo:polysaccharide-contg. compsns. for treating drug withdrawal symptoms - have higher therapeutic range than e.g. methadone, clonidine and dizocilpine. MIZUNO, D, et al. A61K031/715 A61K035/74 A61K037/00 A61K037/20 C08B037/00 C12N001/20 C12P019/04.

☐ 37. JP 04187640 A . Oral and transdermal immune function accelerating agents - contain pertussis bacteria cell lipopolysaccharide(s). A61K035/74.

☐ 38. EP 477050 A DE 69126183 E EP 477050 A3 EP 477050 B1 . LPS-producing bacteria - has strong immunity-stimulating, analgesic and anti-withdrawal effects. MIZUNO, D, et al. A61K031/735 A61K037/20 A61K037/22 C12N001/20 C12P019/04 C12R001/01 C12N001/20 C12R001:01.

☐ 39. EP 472467 A CA 2049548 C CA 2049533 A CA 2049548 A JP 04099481 A EP 472467 A3 US 5281583 A JP 06040937 A JP 06078756 A JP 06090745 A US 5346891 A US 5494819 A . New analgesic compsns. for human and veterinary use - comprise lipo:polysaccharide(s) having specified macrophage activation. MIZUNO, D, et al. A61K031/70 A61K031/715 A61K035/74 A61K037/20 A61K038/16 A61K039/39 C08B037/00 C12N001/00 C12N001/20 C12P019/04 C12P021/00 C12R001/01 C12N001/20 C12R001:425 C12N001/20 C12R001:01 C12P019/04 C12R001:01 C12N001/20 C12R001:01 C12P019/04 C12R001:01.

☐ 40. EP 462022 A CA 2044808 A EP 462022 A3 JP 04049244 A . Human and veterinary antidiabetic agents - contain lipo:polysaccharide (LPS) from lipid A, vegetable or bacterial sources. MIZUNO, D, et al. A61K035/78 A61K037/18 A61K037/20.

☐ 41. EP 462021 A CA 2044811 A EP 462021 A3 JP 04049243 A . Human and veterinary cholesterol lowering agents - contain lipo:polysaccharide from lipid A, vegetable or bacterial sources in admixture with carrier. MIZUNO, D, et al. A61K035/78 A61K037/18 A61K037/20.

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Search Results - Record(s) 41 through 42 of 42 returned.

☐ 41. EP 462021 A CA 2044811 A EP 462021 A3 JP 04049243 A . Human and veterinary cholesterol lowering agents - contain lipo:polysaccharide from lipid A, vegetable or bacterial sources in admixture with carrier. MIZUNO, D, et al. A61K035/78 A61K037/18 A61K037/20.

☐ 42. EP 462020 A CA 2044802 A EP 462020 A3 JP 04049242 A . Compsn. for treating herpes - comprising at least one lipo:polysaccharide having defined macrophage activation. MIZUNO, D, et al. A61K035/78 A61K037/18 A61K037/20.

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Terms	Documents
L3 and LPS	42

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WEST Search History

DATE: Sunday, July 20, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=OR			
L6	L3 and crustacea	1	L6
L5	L3 and LPS	42	L5
L4	L3 and fish	6	L4
L3	L2 and mizuno	114	L3
L2	soma	5855	L2
L1	'MIZUNO CORPORATION'!	104	L1

END OF SEARCH HISTORY

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L5: Entry 12 of 42 File: JPAB Apr 5, 1994

PUB-NO: JP406090745A
DOCUMENT-IDENTIFIER: JP 06090745 A
TITLE: LPS-PRODUCING MICROORGANISM, LPS AND PHARMACEUTICAL AND ANIMAL DRUG CONTAINING LPS

PUBN-DATE: April 5, 1994

INVENTOR-INFORMATION:

NAME	COUNTRY
SOMA, GENICHIRO	
YOSHIMURA, ATSUSHI	
TSUKIOKA, DAISUKE	
MIZUNO, DENICHI	
OSHIMA, HARUYUKI	

ASSIGNEE-INFORMATION:

NAME	COUNTRY
CHIBA SEIFUN KK	
MIZUNO DENICHI	
SOMA GENICHIRO	

APPL-NO: JP04332205
APPL-DATE: November 19, 1992

US-CL-CURRENT: 424/282.1; 435/72
INT-CL (IPC): C12N 1/20; A61K 35/74; A61K 37/20; A61K 37/20; A61K 37/20; A61K 37/20; C08B 37/00; C12P 19/04

ABSTRACT:

PURPOSE: To provide a new immune function activating agent which can be administered by oral administration, transcutaneous administration and injection, an analgesic, their animal drugs, new LPS acting as the active component of the agent and new bacterial strain capable of producing the LPS.

CONSTITUTION: Three kinds of LPS compounds having the following physical properties. (1) LPS1, principal molecular weight, 5,000±1,000 (SDS-PAGE process); number of phosphorus atoms, 2±1/5,000 molecular weight; number of hexosamine groups, 9±1/5,000 molecular weight; number of KDO groups, 2±1/5,000 molecular weight: (2) LPS2, principal molecular weight, 6,500±2,500 (SDS-PAGE process); number of phosphorus atoms, 1-2/5,000 molecular weight; number of hexosamine groups, 7±1/5,000 molecular weight; number of KDO groups, 1-2/5,000 molecular weight: (3) LPS3, principal molecular weight, 6,500±2,500 (SDS-PAGE process); number of phosphorus atoms, 2±1/5,000 molecular weight; number of hexosamine groups, 5±1/5,000 molecular weight; number of KDO groups, 2±1/5,000 molecular weight.

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L5: Entry 12 of 42 File: JPAB Apr 5, 1994

DOCUMENT-IDENTIFIER: JP 06090745 A
TITLE: LPS-PRODUCING MICROORGANISM, LPS AND PHARMACEUTICAL AND ANIMAL DRUG CONTAINING LPS

Abstract Text (1):
PURPOSE: To provide a new immune function activating agent which can be administered by oral administration, transcutaneous administration and injection, an analgesic, their animal drugs, new LPS acting as the active component of the agent and new bacterial strain capable of producing the LPS.

Abstract Text (2):
CONSTITUTION: Three kinds of LPS compounds having the following physical properties. (1) LPS1, principal molecular weight, 5,000±1,000 (SDS-PAGE process); number of phosphorus atoms, 2±1/5,000 molecular weight; number of hexosamine groups, 9±1/5,000 molecular weight; number of KDO groups, 2±1/5,000 molecular weight: (2) LPS2, principal molecular weight, 6,500±2,500 (SDS-PAGE process); number of phosphorus atoms, 1-2/5,000 molecular weight; number of hexosamine groups, 7±1/5,000 molecular weight; number of KDO groups, 1-2/5,000 molecular weight: (3) LPS3, principal molecular weight, 6,500±2,500 (SDS-PAGE process); number of phosphorus atoms, 2±1/5,000 molecular weight; number of hexosamine groups, 5±1/5,000 molecular weight; number of KDO groups, 2±1/5,000 molecular weight.

Applicant Name (2):
MIZUNO DENICHI

Applicant Name (3):
SOMA GENICHIRO

Applicant Name (Derived) (2):
MIZUNO DENICHI

Applicant Name (Derived) (3):
SOMA GENICHIRO

Inventor Name (1):
SOMA, GENICHIRO

Inventor Name (4):
MIZUNO, DENICHI

Inventor Name (Derived) (1):
SOMA, GENICHIRO

Inventor Name (Derived) (4):
MIZUNO, DENICHI

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L5: Entry 16 of 42 File: JPAB Jun 22, 1993

PUB-NO: JP405155778A
DOCUMENT-IDENTIFIER: JP 05155778 A
TITLE: GROWTH PROMOTER AND ANIMAL GROWTH PROMOTER CONTAINING LPS

PUBN-DATE: June 22, 1993

INVENTOR-INFORMATION:
NAME COUNTRY
SOMA, GENICHIRO
YOSHIMURA, ATSUSHI
TSUKIOKA, DAISUKE
MIZUNO, DENICHI
OSHIMA, HARUYUKI

INT-CL (IPC): A61K 35/78; A61K 35/66; A61K 35/80; A61K 37/20; A61K 37/20

ABSTRACT:

PURPOSE: To obtain a growth promoter and an animal growth promoter, having high growth promoting effects, usable for a long period and administrable by any of oral or percutaneous route, transcutan bath or injection.

CONSTITUTION: A growth promoter is characterized by including at least one of the following lipopolysaccharide (LPS) therein: An LPS capable of providing a content of the LPS, positive to the Limulus test and affording an ED50 of the macrophage activating ability of 0.4-100ng/ml culture solution when sigmoid curves are drawn by using the macrophage activating ability of the LPS activating the TNF productivity of an in vitro cultured macrophage as an index and plotting the macrophage activating ability (%) in the macrophage activating ability providing the TNF production of the macrophage without adding the LPS as 0%, and the macrophage activating ability when the TNF production of the macrophage attains the maximum constant amount as 100% on the coordinate axis versus the content of the LPS positive to the Limulus test at that time expressed on the logarithmic scale on the abscissa axis.

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L5: Entry 17 of 42 File: JPAB Jul 6, 1992

PUB-NO: JP404187640A
DOCUMENT-IDENTIFIER: JP 04187640 A
TITLE: IMMUNOLOGICAL FUNCTION PROMOTING AGENT FOR ORAL AND TRANSCUTANEOUS ADMINISTRATION AND IMMUNOLOGICAL FUNCTION PROMOTING AGENT FOR ANIMAL FOR ORAL AND TRANSCUTANEOUS ADMINISTRATION

PUBN-DATE: July 6, 1992

INVENTOR-INFORMATION:
NAME COUNTRY
SOMA, GENICHIRO
YOSHIMURA, ATSUSHI
TSUKIOKA, DAISUKE
MIZUNO, DENICHI
OSHIMA, HARUYUKI

ASSIGNEE-INFORMATION:
NAME COUNTRY
CHIBA SEIFUN KK
MIZUNO DENICHI
SOMA GENICHIRO

APPL-NO: JP02315919
APPL-DATE: November 22, 1990

INT-CL (IPC): A61K 35/74; A61K 35/74

ABSTRACT:

PURPOSE: To provide an immunological function promoting agent for oral and transcutaneous administration, containing Bordetella pertussis LPS, having high immunological function activation capability and high chemotherapeutic index and producible at a low cost.

CONSTITUTION: The objective agent contains Bordetella pertussis LPS preferably having a molecular weight of 6000±1000 and 9000±1000 (determined by SDS electrophoresis) and containing 5 P atoms, 16±2 hexosamine groups, 5 fatty acid groups and 2±1 KDO based on 8,000 molecular weight. The immunological function is e.g. macrophage-activation property, especially endogenous TNF- production promoting property. The immunological function promoting activity can be further improved by the combined use of an agent for suppressing the production of prostaglandin (e.g. indomethacin).

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L5: Entry 18 of 42 File: JPAB Mar 31, 1992

PUB-NO: JP404099481A
DOCUMENT-IDENTIFIER: JP 04099481 A
TITLE: NOVEL BACTERIUM, NOVEL LPS, NOVEL IMMUNOFUNCTION-ACTIVATING AGENT, NEW IMMUNOFUNCTION-ACTIVATING AGENT FOR ANIMAL

PUBN-DATE: March 31, 1992

INVENTOR-INFORMATION:
NAME COUNTRY
SOMA, GENICHIRO
YOSHIMURA, ATSUSHI
TSUKIOKA, DAISUKE
MIZUNO, DENICHI
OSHIMA, HARUYUKI

US-CL-CURRENT: 435/72; 435/252.5
INT-CL (IPC): C12N 1/20; A61K 35/74; A61K 39/39

ABSTRACT:

NEW MATERIAL:A LPS-producing gram negative short Bacillus bacterium(FERN P-3509). Shape: a short culmed shape, not moving and negative to Gram stain; growth state: forms a yellow-creamy round and opaque colony in the standard agar medium; physiological properties: positive to Voges-Proskauer reaction, O-F test, etc., and negative to indole-producing reaction. etc.; the utilization of carbon sources: utilizes lactose, rhamnose, etc., not utilize adonite, inositol, etc.

USE: A baceterium for producing a novel LPS which is an active ingredient for immunofunction-activating agents for animals.

PREPARATION: Wheat flour is mixed with distilled water, cultured with shaking at 37°C, diluted, sowed on a standard agar medium and subsequently cultured. A colony producing the LPS is screened from the colonies thus produced by a test.

☐ Generate Collection

L5: Entry 30 of 42 File: DWPI Aug 1, 1996

DERWENT-ACC-NO: 1996-362635
DERWENT-WEEK: 199636

TITLE: Low mol. wt. lipo-polysaccharide from Pantoea or Salmonella - has high safety and high biological activity for pharmaceutical use, e.g. against toxoplasmosis and hypocholesterolaemia, anticancer and antidiabetic agent

INVENTOR: MIZUNO, D; NISHIZAWA, T ; SOMA, G

PATENT-ASSIGNEE:

ASSIGNEE	CODE
MIZUNO D	MIZUI
SOMA G	SOMAI
TAIHO PHARM CO LTD	TAIH

PRIORITY-DATA: 1995JP-0012126 (January 27, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9623002 A1	August 1, 1996	J	032	C08B037/00
JP 08198902 A	August 6, 1996		011	C08B037/00

DESIGNATED-STATES: US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

CITED-DOCUMENTS:JP 40187640; JP 5155778 ; JP 60141849

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
WO 9623002A1	January 25, 1996	1996WO-JP00135	
JP 08198902A	January 27, 1995	1995JP-0012126	

INT-CL (IPC): A61 K 31/715; C08 B 37/00; C12 P 19/04; C12 P 19/04; C12 R 1:42; C12 P 19/04; C12 R 1:01; C12 P 19/04; C12 R 1:42

ABSTRACTED-PUB-NO: WO 9623002A

BASIC-ABSTRACT:

Low mol. wt. lipopolysaccharide of microbial origin (LP) has the following properties:(a) mol.wt. 5000 (plus or minus2000) by SDS-PAGE using protein markers, the material being substantially free from fractions of other mol.wt.;(b) 1-3 hexosamine units/mol. (5000 mol.wt. by Elson-Morgan method);(c) 1-3 2keto-3-deoxy-octonate units/mol. (5000 mol.wt. by the diphenylamine method);(d) limulus activity of 10 EU/ng, and(e) protein content and nucleic acid content each <1% (wt.).

USE - (LP) can be used as a pharmaceutical, e.g. against toxoplasmosis, as hypocholesterolaemia, anti-herpes, anti-rheumatic, anti-diabetic, immuno-modulator, anti-cancer, anti-gastric ulcer or anti-haemorrhoid agent. (LP) should be administered at 1 mug-100 mg orally or 10 ng-10 mg parenterally/day.

ADVANTAGE - (LP) has a high safety factor (low toxicity) and high biological activity.

CHOSEN-DRAWING: Dwg.0/2

TITLE-TERMS: LOW MOLECULAR WEIGHT LIPO POLYSACCHARIDE SALMONELLA HIGH SAFETY HIGH BIOLOGICAL ACTIVE PHARMACEUTICAL TOXOPLASMA HYPOCHOLESTEROLAEMIC ANTICANCER ANTIDIABETIC AGENT

DERWENT-CLASS: B04 D16

CPI-CODES: B04-C02V; B14-A02A3; B14-C06; B14-D02A2; B14-E04; B14-E08; B14-G03; B14-S04; D05-C; D05-H13;

CHEMICAL-CODES:

Chemical Indexing M1 *01*
Fragmentation Code
M423 M710 M903 P210 P220 P423 P433 P434 P529 P633
P738 P816 Q233 V735

SECONDARY-ACC-NO:
CPI Secondary Accession Numbers: C1996-114244

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L5: Entry 34 of 42 File: DWPI May 24, 1994

DERWENT-ACC-NO: 1994-205014
DERWENT-WEEK: 199425

TITLE: LPS-producing gram-negative microbe - has high immune function activating ability for animals

Basic Abstract Text (1):
An LPS-producing Gram-negative microbe has the following properties: (a) Form (1) Motile at 30 deg.C, (2) Gram-staining:- (b) Growing condition (1) Trypticase soya agar medium: Forms white to pale yellow colonies. (c) Physiological properties (1) Indol formation:+; (2) Voges-Proskauer reaction:+; (3) Nitrate reduction:+; (4) hydrogen sulphide formation:+/-; (5) Esculin hydrolysys:+; (6) Gas formation from D-glucose:+; (7) Lysine decarboxylase: +/-; (8) Arginine dihydrolylase:+; (9) Ornithine decarboxylase:-; (10) Phenylalanine deaminase:-; (11) Deoxyribonuclease:+; (12) Kovac oxidase:+; (13) Beta-galactosidase:+; (14) Urease:-; (d) Utility (1) Simmons citrate: +/-; (2) Malonic acid:-; (3) Inositol:-; (4) Sucrose: +/-; (5) Adonitol:-; (6) Raffinose:-; (7) L-arabinose:+; (8) D-mannitol:+/-; (9) L-rhamnose:-; (10) D-sorbitol:-.

Basic Abstract Text (2):
LPS originated from the microbe has the following properties: M.W.: 5000+/-1500 (by tricine SDS-PAGE); Phosphor molar number: 2.0+/-1/M.W.5000; Hexosamine molar number: 9.1+/-M.W.5000; KDO molar number: 0.8+/-0.5/M.W.5000.

Basic Abstract Text (3):
An immune function activator contg. the LPS and an immune function activator for animals contg. above LPS, are also claimed.

Basic Abstract Text (4):
USE/ADVANTAGE - The LPS is new and low in toxicity, has a high immune function activating ability, can be dosed through various paths and can be produced at low cost.

Basic Abstract Text (5):
In an example, E coli LPS0127:BS was cultured in a trypticase soya agar medium at 30 deg.C overnight. Among 7 colonies, a white to pale yellow Gram-negative colony was collected and cultured in an LB medium at 30 deg.C for 18 hrs. The culture was centrifuged and the ppt. was suspended in distilled water, treated with phenol, centrifuged and extracted with distilled water. The extract was dialysed against distilled water, purified by a Q-Sepharose column and eluted by 400 mM NaCl, ultrafiltered and freeze-dried to give 13.0 mg LPS. It showed a TNF productivity 2.5 times higher than that of E coli LPS.

Patent Assignee Terms (1):
MIZUNO D

Patent Assignee Terms (2):
SOMA G

Patent Assignee Terms (1):
MIZUNO D

Patent Assignee Terms (2):
SOMA G

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L5: Entry 35 of 42 File: DWPI Jun 22, 1993

DERWENT-ACC-NO: 1993-232272
DERWENT-WEEK: 199329

TITLE: Growth stimulant for animals - contains lipo:polysaccharide which activates macrophage TNF productivity

PATENT-ASSIGNEE: CHIBA SEIFUN KK (CHIBN), MIZUNO D (MIZUI), SOMA G (SOMAI)

PRIORITY-DATA: 1991JP-0357351 (December 2, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 05155778 A	June 22, 1993		031	A61K035/78

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 05155778A	December 2, 1991	1991JP-0357351	

INT-CL (IPC): A61K 35/66; A61K 35/78; A61K 35/80; A61K 37/20

ABSTRACTED-PUB-NO: JP 05155778A
BASIC-ABSTRACT:

Growth stimulants contain at least one lipopolysaccharide (LPS) which activates the macrophage TNF productivity obtd. by in vitro culture as an index, and contains Limulus test positive LPS exhibiting ED50 for macrophage activity or 0.4-100 ng/ml of LPS in culture soln. expressed on a graph having ordinate axis of TNF productivity of macrophage placing macrophage activation in the absence of LPS at 0% and macrophage activation to make max. macrophage TNF prodn. at 100%, and a transverse axis expressing Limulus test positive LPS content in logarithmic scale.

Also claimed are (1) growth stimulant LPS obtd. from plants, bacteria, lipid A, and their mixts.; (2) a growth stimulant LPS obtd. from wheat and having following physicochemical properties: (a) main molecular wt. of 8,000 +/- 1,000 (SDS-1 method), 8,000 +/- 1,000 (SDS-2 method), and 5,000 +/- 2,000 (SDS-2 method), amt. of P is 1-4/molecular wt. 8,000 amt. of hexosamine: 6 +/- 2/molecular wt. 8,000, amt. of fatty acid: 6 +/- 2/molecular wt. 8,000, and KDO (2-keto-3-deoxyoctonate) number is 5 +/- 1/molecular wt. 8,000; (3) growth stimulant LPS obtd. from chlorella, E. coli, Bordetella pertussis, Agrobacterium radiobacter and three bacteria having similar physicochemical properties are also claimed.

USE/ADVANTAGE - Growth stimulant for animals including humans for the prevention of premature infants without adverse reactions for in vivo residual activity which can be administered for a long period by oral, percutaneous, medicated bath or injection and can be massively produced at low cost

ABSTRACTED-PUB-NO: JP 05155778A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/0

DERWENT-CLASS: B04 C03
CPI-CODES: B04-B01B; C04-B01B; B04-B04J; C04-B04J; B04-C02; C04-C02;

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L5: Entry 35 of 42 File: DWPI Jun 22, 1993

DERWENT-ACC-NO: 1993-232272
DERWENT-WEEK: 199329

TITLE: Growth stimulant for animals - contains lipo:polysaccharide which activates macrophage TNF productivity

Basic Abstract Text (1):
Growth stimulants contain at least one lipopolysaccharide (LPS) which activates the macrophage TNF productivity obtd. by in vitro culture as an index, and contains Limulus test positive LPS exhibiting ED50 for macrophage activity or 0.4-100 ng/ml of LPS in culture soln. expressed on a graph having ordinate axis of TNF productivity of macrophage placing macrophage activation in the absence of LPS at 0% and macrophage activation to make max. macrophage TNF prodn. at 100%, and a transverse axis expressing Limulus test positive LPS content in logarithmic scale.

Basic Abstract Text (2):
Also claimed are (1) growth stimulant LPS obtd. from plants, bacteria, lipid A, and their mixts.; (2) a growth stimulant LPS obtd. from wheat and having following physicochemical properties: (a) main molecular wt. of 8,000 +/- 1,000 (SDS-1 method), 8,000 +/- 1,000 (SDS-2 method), and 5,000 +/- 2,000 (SDS-2 method), amt. of P is 1-4/molecular wt. 8,000 amt. of hexosamine: 6 +/- 2/molecular wt. 8,000, amt. of fatty acid: 6 +/- 2/molecular wt. 8,000, and KDO (2-keto-3-deoxyoctonate) number is 5 +/- 1/molecular wt. 8,000; (3) growth stimulant LPS obtd. from chlorella, E. coli, Bordetella pertussis, Agrobacterium radiobacter and three bacteria having similar physicochemical properties are also claimed.

Patent Assignee Terms (2):
MIZUNO D

Patent Assignee Terms (3):
SOMA G

Patent Assignee Terms (2):
MIZUNO D

Patent Assignee Terms (3):
SOMA G

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L5: Entry 38 of 42 File: DWPI Mar 25, 1992

DERWENT-ACC-NO: 1992-098698
DERWENT-WEEK: 199731

TITLE: LPS-producing bacteria - has strong immunity-stimulating, analgesic and anti-withdrawal effects

Basic Abstract Text (1):
Three new strains of LPS-producing gram-negative small bacilli have morphological, growth, physiological and C utilisation characteristics defined in the specification.

Basic Abstract Text (2):
Also claimed are: (1) LPS provided by the 1st strain of bacilli (LPS1) having a dominant mol.wt. of 5,000 +/- 1,000 (SDS-PAGE), having 2+/-1 phosphorus, 9+/-1 hexosamines and 2+/-1 KDO per mol.wt. of 5,000; (2) LPS provided by the 2nd strain of bacillis (LPS2) having a dominant mol.wt. of 6,500+/-2,500 (SDS-PAGE), having 1-2 phosphorus, 7+/-1 hexosamines and 1-2 KDO per mol.wt. of 5,000; (3) LPS provided by the 3rd strain of bacilli (LPS3) having a dominant mol.wt. of 6,500 +/- 2,500 (SDS-PAGE), having 2+/-1 phosphorus, 5+/-1 hexosamines and 2+/-1 KDO per mol.wt. of 5,000; and (4) immunity stimulators, analgesics and antiwithdrawal agents contg. LPS as above.

Patent Assignee Terms (1):
MIZUNO D

Patent Assignee Terms (2):
SOMA G

Patent Assignee Terms (1):
MIZUNO D

Patent Assignee Terms (2):
SOMA G

Equivalent Abstract Text (1):
LPS (lipopolysaccharide)-producing gram-negative small bacilli which have the intrinsic characteristics of the microorganism FERM BP-3509 belonging to the genus Serratia, the characteristics being as follows: (a) Morphological characteristics (1) Small rod, (2) No motility, (3) Gram stain; (b) Growth (1) Standard agar medium: a yellow to creamy round opaque colony is formed, (2) SS (Salmonella-Shigella) agar medium: A white translucent colony is formed, (3) TSI (Triple Sugar iron) medium: No change is found on the slant, but the higher layer changes to yellow and Gas is produced; (c) Physiological characteristics (1) Voges-Proskauer reaction + (2) Indole production - (3) Hydrogen sulphide production - (4) utilisation of citrate + (5) Urease - (6) Oxidase - (7) O-F test (Oxidation-Fermentation test) + (d) Utilisation of carbon sources (1) Lactose + (2) Adonitol - (3) Rhamnose + (4) Mannitol + (5) Esculin + (6) Inositol - (7) Sorbitol + (8) Arabinose + (9) Raffinose + (10) Sucrose + (e) Others (1) Lysin decarboxylase - (2) Utilisation of malonate - (3) Arginine dihydroxylase - (4) Phenylalanine deaminase - (5) Omithine decarboxylase.

Inventor Name (1):
MIZUNO, D

Inventor Name (3):
SOMA, G

Inventor Name (6):
SOMA, G I

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L5: Entry 38 of 42 File: DWPI Mar 25, 1992

DERWENT-ACC-NO: 1992-098698
DERWENT-WEEK: 199731

TITLE: LPS-producing bacteria - has strong immunity-stimulating, analgesic and anti-withdrawal effects

INVENTOR: MIZUNO, D; OSHIMA, H ; SOMA, G ; TSUKIOKA, D ; YOSHIMURA, K ; SOMA, G I

PATENT-ASSIGNEE: MIZUNO D (MIZUI), SOMA G (SOMAI), CHIBA FLOUR MILLING CO LTD (CHIBN)

PRIORITY-DATA: 1990JP-0312932 (November 20, 1990), 1990JP-0218599 (August 20, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 477050 A	March 25, 1992		027	
DE 69126183 E	June 26, 1997		000	C12N001/20
EP 477050 A3	March 17, 1993		000	
EP 477050 B1	May 21, 1997	E	031	C12N001/20

DESIGNATED-STATES: AT BE CH DE DK ES FR GB GR IT LI LU NL SE AT BE CH DE DK ES FR GB GR IT LI LU NL SE

CITED-DOCUMENTS:No-SR.Pub; 9.Jnl.Ref ; 5.Jnl.Ref ; EP 472467 ; EP 533517

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 477050A	August 20, 1991	1991EP-0402275	
DE 69126183E	August 20, 1991	1991DE-0626183	
DE 69126183E	August 20, 1991	1991EP-0402275	
DE 69126183E		EP 477050	Based on
EP 477050A3	August 20, 1991	1991EP-0402275	
EP 477050B1	August 20, 1991	1991EP-0402275	

INT-CL (IPC): A61K 31/735; A61K 37/20; A61K 37/22; C12N 1/20; C12P 19/04; C12R 1/01; C12N 1/20; C12R 1/01

RELATED-ACC-NO: 1992-066655;1993-095774

ABSTRACTED-PUB-NO: EP 477050A
BASIC-ABSTRACT:

Three new strains of LPS-producing gram-negative small bacilli have morphological, growth, physiological and C utilisation characteristics defined in the specification.

Also claimed are: (1) LPS provided by the 1st strain of bacilli (LPS1) having a dominant mol.wt. of 5,000 +/- 1,000 (SDS-PAGE), having 2+/-1 phosphorus, 9+/-1 hexosamines and 2+/-1 KDO per mol.wt. of 5,000; (2) LPS provided by the 2nd strain of bacillis (LPS2) having a dominant mol.wt. of 6,500+/-2,500 (SDS-PAGE), having 1-2 phosphorus, 7+/-1 hexosamines and 1-2 KDO per mol.wt. of 5,000; (3) LPS provided by the 3rd strain of bacilli (LPS3) having a dominant mol.wt. of 6,500 +/- 2,500 (SDS-PAGE), having 2+/-1 phosphorus, 5+/-1 hexosamines and 2+/-1 KDO per mol.wt. of

5,000; and (4) immunity stimulators, analgesics and antiwithdrawal agents contg. LPS as above.

USE/ADVANTAGE - The LPSs show excellent immunity-stimulating, analgesic and antiwithdrawal effects and a high therapeutic range. They exhibit none of the side effects and drawbacks of prior art agents (e.g. dependency) and can be produced in large amts. at low cost. They can be used to treat both human and animal patients. For human administration, dose is pref. 1ng- 100mg (oral), 10ng-10mg (i.v.) and 100ng-1mg (percutaneous) per day (60kg adult). For veterinary use, corresponding values are given depending on body wt.

ABSTRACTED-PUB-NO: EP 477050B
EQUIVALENT-ABSTRACTS:

LPS (lipopolysaccharide)-producing gram-negative small bacilli which have the intrinsic characteristics of the microorganism FERM BP-3509 belonging to the genus Serratia, the characteristics being as follows: (a) Morphological characteristics (1) Small rod, (2) No motility, (3) Gram stain; (b) Growth (1) Standard agar medium: a yellow to creamy round opaque colony is formed, (2) SS (Salmonella-Shigella) agar medium: A white translucent colony is formed, (3) TSI (Triple Sugar iron) medium: No change is found on the slant, but the higher layer changes to yellow and Gas is produced; (c) Physiological characteristics (1) Voges-Proskauer reaction + (2) Indole production - (3) Hydrogen sulphide production - (4) utilisation of citrate + (5) Urease - (6) Oxidase - (7) O-F test (Oxidation-Fermentation test) + (d) Utilisation of carbon sources (1) Lactose + (2) Adonitol - (3) Rhamnose + (4) Mannitol + (5) Esculin + (6) Inositol - (7) Sorbitol + (8) Arabinose + (9) Raffinose + (10) Sucrose + (e) Others (1) Lysin decarboxylase - (2) Utilisation of malonate - (3) Arginine dihydroxylase - (4) Phenylalanine deaminase - (5) Omithine decarboxylase.

CHOSEN-DRAWING: Dwg.0/5 Dwg.0/5

DERWENT-CLASS: B04 C06 D16
CPI-CODES: B04-B01B; C04-B01B; B04-B02B1; C04-B02B1; B04-C02F; C04-C02F; B12-A01; C12-A01; B12-A06; C12-A06; B12-D01; C12-D01; B12-J05; C12-J05; D05-C08; D05-H04;

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L5: Entry 39 of 42 File: DWPI Feb 26, 1992

DERWENT-ACC-NO: 1992-066655
DERWENT-WEEK: 200253

TITLE: New analgesic compsns. for human and veterinary use - comprise lipo:polysaccharide(s) having specified macrophage activation

INVENTOR: MIZUNO, D; OSHIMA, H ; SOMA, G ; TSUKIOKA, D ; YOSHIMURA, K ; SOMA, G I

PATENT-ASSIGNEE: SOMA G I (SOMAI), CHIBA FLOUR MILLING CO LTD (CHIBN), MIZUNO D (MIZUI), SOMA G (SOMAI), CHIBA SEIFUN KK (CHIBN)

PRIORITY-DATA: 1990JP-0312932 (November 20, 1990), 1990JP-0218599 (August 20, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 472467 A	February 26, 1992		000	
CA 2049548 C	July 2, 2002	E	000	C12N001/20
CA 2049533 A	February 21, 1992		000	
CA 2049548 A	February 21, 1992		000	
JP 04099481 A	March 31, 1992		014	
EP 472467 A3	March 17, 1993		000	
US 5281583 A	January 25, 1994		025	A61K031/70
JP 06040937 A	February 15, 1994		031	A61K037/20
JP 06078756 A	March 22, 1994		016	C12N001/20
JP 06090745 A	April 5, 1994		013	C12N001/20
US 5346891 A	September 13, 1994		014	A61K031/715
US 5494819 A	February 27, 1996		013	C12N001/00

DESIGNATED-STATES: AT BE CH DE ES FR GB GR IT LI LU NL SE

CITED-DOCUMENTS:NoSR.Pub; 6.Jnl.Ref ; EP 462020 ; EP 462021 ; EP 462022

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 472467A	August 20, 1991	1991EP-0402276	
CA 2049548C	August 20, 1991	1991CA-2049548	
JP 04099481A	August 20, 1990	1990JP-0218599	
EP 472467A3	August 20, 1991	1991EP-0402276	
US 5281583A	August 20, 1991	1991US-0747728	CIP of
US 5281583A	August 22, 1991	1991US-0748808	
JP 06040937A	August 20, 1991	1991JP-0291844	
JP 06078756A	August 20, 1991	1991JP-0291845	
JP 06090745A	August 20, 1991	1991JP-0291845	Div ex
JP 06090745A	August 20, 1991	1992JP-0332205	
US 5346891A	August 20, 1991	1991US-0747633	
US 5494819A	August 20, 1991	1991US-0747633	Div ex
US 5494819A	April 12, 1994	1994US-0226636	
US 5494819A		US 5346891	Div ex

INT-CL (IPC): A61K 31/70; A61K 31/715; A61K 35/74; A61K 37/20; A61K 38/16; A61K 39/39; C08B 37/00; C12N 1/00; C12N 1/20 ; C12P 19/04; C12P 21/00; C12R 1/01; C12N 1/20; C12R 1/425; C12N 1/20; C12R 1/01; C12P 19/04; C12R 1/01; C12N 1/20; C12R 1/01; C12P 19/04; C12R 1/01

RELATED-ACC-NO: 1992-098698;1993-095774

ABSTRACTED-PUB-NO: EP 472467A
BASIC-ABSTRACT:

Analgesic compsn. contains at least one lipopolysaccharide (LPS) having ED50 for macrophage activation 0.4-100 ng/ml culture, expressed in terms of limulus-test positive LPS content.

The ED50 is determined from a sigmoid plot of the macrophage activating ability (MAA; ordinate; i.e. the ability of LPS to activate prodn. of tumour necrosis factor (TNF) by macrophages cultured in vitro) vs. LPS content (abscissa). MAA is defined as 0% where no LPS is added and 100% is the max. (plateau) value. LPS is formulated with a pharmaceutically or veterinarily acceptable carrier. Specifically LPS is of plant or bacterial origin, or is synthetic lipid A.

USE/ADVANTAGE - The compsns. are useful in human or veterinary medicine; have a high therapeutic range; are inexpensive; can be prepd. on a large scale, and can be admin. orally, intradermally or by injection. The compsns. are also said to have cholesterol-lowering activity (not claimed).

ABSTRACTED-PUB-NO: US 5281583A
EQUIVALENT-ABSTRACTS:

Analgesic compsn. comprises a macrophage-activating lipo- polysaccharide (e.g. vegetable or bacterial lipopolysaccharide or lipid A) having ED50 0.4-100 ng/cm3 of culture medium and exhibiting a positive limulus test.

USE/ADVANTAGE - The prods. are administered orally, intradermally or by injection for the prophylaxis or alleviation of pain in humans or animals. The prods. are inexpensive, non-addictive and without side effects.

US 5346891A

Lipopolysaccharide produced by Serratia ficaria FERM BP-3509 has a mol.wt. of 5,000 +/- 1,000 by SDS-PAGE, has 1-3 phosphorous, 8-10 hexoeamines and 1-3 KDO per mol. wt. of 5,000. Further characteristics are also claimed.

USE - As an immunostimulant, analgesic and antiwithdrawal agent.

US 5494819A

A biologically pure culture of a strain of the species Pantoea agglomerants having all the identifying characteristics of FERM BP-3511 wherein the identifying characteristics are as follows:

a) Morphological characteristics: 1) Small rod, 2) No Motility,

3) Gram stain; b) Growth: 1) Standard agar medium: A yellow round translucent colony is formed, 2) SS agar medium: No colony is formed, 3) TSI agar medium: No change is found on the slant, but the higher layer changes to yellow; Gas is not produced; c) Physiological characteristics: 1) Voges-Proskauer reaction (+); 2) Indole production (-), 3) Hydrogen sulfide production (-), 4) Utilization of citrate (+), 5) Urease (-), 6) Oxidase (-), 7) O-F test (+); d) Utilization of carbon sources: 1) Lactose (+), 2) Adonitol (-), 3) Rhamnose (+), 4) Mannitol (+), 5) Esculin (+), 6) Inositol (-), 7) Sorbitol (+), 8) Arabinose (+), 9) Raffinose (-), 10) Sucrose (+); e) Others: 1) Lysin decarboxylase (-), 2) Utilization of malonate (+), 3) Arginine dihydroxylase (-), 4) Phenylalanine deaminase (-), 5) Ornithine decarboxylase (-), f) and which produces a lipopolysaccharide having a dominant molecular weight of 6,500-/+2,500 as determined by SDS-PAGE method, 2-/+1 phosphorus, 5-/+1 hexosamines

and 2-/+1 2-keto-3-deoxyoctonate per molecular weight of 5,000.

CHOSEN-DRAWING: Dwg.0/1 Dwg.0/0 Dwg.0/3 Dwg.0/5

DERWENT-CLASS: B04 C03
CPI-CODES: B04-B01B; B04-C02D; B04-C02F; B12-D01; B12-H03; C04-B01B; C04-C02D; C04-C02F; C12-D01; C12-H03;

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Search Results - Record(s) 1 through 10 of 19 returned.

☐ 1. Document ID: US 6015910 A

L13: Entry 1 of 19 File: USPT Jan 18, 2000

US-PAT-NO: 6015910
DOCUMENT-IDENTIFIER: US 6015910 A

TITLE: Intermediates to pesticidal 5-amino-4-ethylsulfinyl-1-arylpryazoles

DATE-ISSUED: January 18, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wu; Tai-Teh	Chapel Hill	NC	N/A	N/A

US-CL-CURRENT: 548/367.7; 548/367.4; 548/371.7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 5972642 A

L13: Entry 2 of 19 File: USPT Oct 26, 1999

US-PAT-NO: 5972642
DOCUMENT-IDENTIFIER: US 5972642 A

TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use

DATE-ISSUED: October 26, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flen.o slashed.; Bent	Stenl.o slashed.se	N/A	N/A	DKX
Christensen; Ib	Aller.o slashed.d	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen Radich	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 435/67; 435/171, 435/255.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 5883112 A

L13: Entry 3 of 19 File: USPT Mar 16, 1999

US-PAT-NO: 5883112
DOCUMENT-IDENTIFIER: US 5883112 A

TITLE: Synergistic compositions comprising pesticidal 5-amino-4-ethylsulfinyl-1-arylpyrazoles and piperonyl butoxide

DATE-ISSUED: March 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pilato; Michael Thomas	Cary	NC	N/A	N/A
Haas; Charles Lee	Garner	NC	N/A	N/A

US-CL-CURRENT: 514/404; 514/407, 548/367.4, 548/367.7, 548/371.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 5814652 A

L13: Entry 4 of 19 File: USPT Sep 29, 1998

US-PAT-NO: 5814652
DOCUMENT-IDENTIFIER: US 5814652 A

TITLE: Pesticidal 5-amino-4-ethylsulfinyl-1-arylpyrazoles

DATE-ISSUED: September 29, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wu; Tai-Teh	Chapel Hill	NC	N/A	N/A

US-CL-CURRENT: 514/404; 548/367.4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 5. Document ID: US 5712110 A

L13: Entry 5 of 19 File: USPT Jan 27, 1998

US-PAT-NO: 5712110
DOCUMENT-IDENTIFIER: US 5712110 A

TITLE: Astaxanthin-producing yeast cells methods for their preparation and their use

DATE-ISSUED: January 27, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flen.o slashed. ; Bent	Stenl.o slashed.se	N/A	N/A	DKX
Christensen; Ib	Aller.o slashed.d	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen Radich	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 435/67; 435/171, 435/255.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 5709856 A

L13: Entry 6 of 19 File: USPT Jan 20, 1998

US-PAT-NO: 5709856
DOCUMENT-IDENTIFIER: US 5709856 A

TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use

DATE-ISSUED: January 20, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flen.o slashed.; Bent	Stenl.o slashed.se	N/A	N/A	DKX
Christensen; Ib	Aller.o slashed.d	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen Radich	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 424/93.51; 426/540, 426/62, 435/255.1, 435/67

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 7. Document ID: US 5698246 A

L13: Entry 7 of 19 File: USPT Dec 16, 1997

US-PAT-NO: 5698246
DOCUMENT-IDENTIFIER: US 5698246 A

TITLE: Foodstuff for and method of feeding crustaceans and fish

DATE-ISSUED: December 16, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Villamar; Daniel F.	Maple Grove	MN	N/A	N/A

US-CL-CURRENT: 426/54; 426/2, 426/53, 426/623, 426/635

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

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☐ 8. Document ID: US 5679567 A

L13: Entry 8 of 19 File: USPT Oct 21, 1997

US-PAT-NO: 5679567
DOCUMENT-IDENTIFIER: US 5679567 A

TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use

DATE-ISSUED: October 21, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flen.o slashed. ; Bent	Stenl.o slashed.se	N/A	N/A	DKX
Christensen; Ib	Aller.o slashed.d	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen Radich	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 435/255.1; 435/67

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

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☐ 9. Document ID: US 5670548 A

L13: Entry 9 of 19 File: USPT Sep 23, 1997

US-PAT-NO: 5670548
DOCUMENT-IDENTIFIER: US 5670548 A

TITLE: Pigmentation with carotenoids

DATE-ISSUED: September 23, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bernhard; Kurt	Lupsingen	N/A	N/A	CHX
Broz; Jiri	Rheinfelden	N/A	N/A	CHX
Hengartner; Urs	Basel	N/A	N/A	CHX
Kreienbuhl; Paul	Riehen	N/A	N/A	CHX
Schiedt; Katharina	Arlesheim	N/A	N/A	CHX

US-CL-CURRENT: 514/725; 424/442

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 10. Document ID: US 5605699 A

L13: Entry 10 of 19 File: USPT Feb 25, 1997

US-PAT-NO: 5605699
DOCUMENT-IDENTIFIER: US 5605699 A

TITLE: Pigmentation with carotenoids

DATE-ISSUED: February 25, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bernhard; Kurt	Lupsingen	N/A	N/A	CHX
Broz; Jiri	Rheinfelden	N/A	N/A	CHX
Hengartner; Urs	Basel	N/A	N/A	CHX
Kreienbuhl; Paul	Riehen	N/A	N/A	CHX
Schiedt; Katharina	Arlesheim	N/A	N/A	CHX

US-CL-CURRENT: 424/442; 424/489, 426/807

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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Generate Collection

Terms	Documents
(crustacean? and fish)and (feedstuff)	19

Display 10 Documents, starting with Document: 11

Display Format: CIT Change Format

WEST

Generate Collection

Search Results - Record(s) 11 through 19 of 19 returned.

☐ 11. Document ID: US 5599711 A

L13: Entry 11 of 19 File: USPT Feb 4, 1997

US-PAT-NO: 5599711
DOCUMENT-IDENTIFIER: US 5599711 A

TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use

DATE-ISSUED: February 4, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Flen.o slashed.; Bent	Stenl.o slashed.se	N/A	N/A	DKX
Christensen; Ib	Aller.o slashed.d	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen R.	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 435/255.1; 435/67

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

☐ 12. Document ID: US 5356810 A

L13: Entry 12 of 19 File: USPT Oct 18, 1994

US-PAT-NO: 5356810
DOCUMENT-IDENTIFIER: US 5356810 A

TITLE: Astaxanthin-producing yeast cells, methods for their preparation and their use

DATE-ISSUED: October 18, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fleno; Bent	Stenlose	N/A	N/A	DKX
Christensen; Ib	Allerod	N/A	N/A	DKX
Larsen; Robert	Virum	N/A	N/A	DKX
Johansen; Steffen R.	Ega	N/A	N/A	DKX
Johnson; Eric A.	Madison	WI	N/A	N/A

US-CL-CURRENT: 435/255.1; 435/67

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 13. Document ID: US 5356809 A

L13: Entry 13 of 19 File: USPT Oct 18, 1994

US-PAT-NO: 5356809
DOCUMENT-IDENTIFIER: US 5356809 A

TITLE: Processes for in vivo production of astaxanthin and phaffia rhodozyma yeast of enhanced astaxanthin content

DATE-ISSUED: October 18, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Johnson; Eric A.	Madison	WI	N/A	N/A
Yang; Huei-hsiung	Rockville	MD	N/A	N/A
Geldiay-Tuncer; Beril	Bostanli-Karsiyaka	N/A	N/A	TRX
Hall; William T.	Rockville	MD	N/A	N/A
Schreiber; David	Columbia	MD	N/A	N/A
Ho; Kwok	San Diego	CA	N/A	N/A

US-CL-CURRENT: 435/255.1; 435/244, 435/256.8, 435/67, 435/911

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 14. Document ID: US 5182208 A

L13: Entry 14 of 19 File: USPT Jan 26, 1993

US-PAT-NO: 5182208
DOCUMENT-IDENTIFIER: US 5182208 A

TITLE: Processes for in vivo production of astaxanthin and phaffia rhodozyma yeast of enhanced astaxanthin content

DATE-ISSUED: January 26, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Johnson; Eric A.	Madison	WI	N/A	N/A
Schreiber; David	Columbia	MD	N/A	N/A
Ho; Kwok P.	Columbia	MD	N/A	N/A
Hall; William T.	Rockville	MD	N/A	N/A
Yang; Huei-hsiung	Rockville	MD	N/A	N/A
Geldiay-Tuncer; Beril	College Park	MD	N/A	N/A

US-CL-CURRENT: 435/255.1; 435/244, 435/253.6, 435/67, 435/911

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

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☐ 15. Document ID: US 5030657 A

L13: Entry 15 of 19 File: USPT Jul 9, 1991

US-PAT-NO: 5030657
DOCUMENT-IDENTIFIER: US 5030657 A

TITLE: L-carnitine supplemented catfish diet

DATE-ISSUED: July 9, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Burtle; Gary J.	Tifton	GA	N/A	N/A
Newton; G. Larry	Tifton	GA	N/A	N/A
Blum; Stephen A.	Des Moines	IA	N/A	N/A

US-CL-CURRENT: 514/556; 426/805, 514/951, 514/963

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWMC | Draw Desc | Image

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☐ 16. Document ID: US 4958011 A

L13: Entry 16 of 19 File: USPT Sep 18, 1990

US-PAT-NO: 4958011
DOCUMENT-IDENTIFIER: US 4958011 A

TITLE: Ester-stabilized chitin

DATE-ISSUED: September 18, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bade; Maria L.	Lexington	MA	02173	N/A

US-CL-CURRENT: 536/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

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☐ 17. Document ID: US 4906479 A

L13: Entry 17 of 19 File: USPT Mar 6, 1990

US-PAT-NO: 4906479
DOCUMENT-IDENTIFIER: US 4906479 A

TITLE: Feedstuff for artemia

DATE-ISSUED: March 6, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kitagawa; Kiyohiro	Chiba	N/A	N/A	JPX
Kojima; Eiji	Kanagawa	N/A	N/A	JPX
Seto; Akira	Kanagawa	N/A	N/A	JPX
Sakamoto; Shuichi	Tokyo	N/A	N/A	JPX
Nozawa; Takuji	Chiba	N/A	N/A	JPX

US-CL-CURRENT: 426/1; 426/2, 426/59, 426/60

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

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☐ 18. Document ID: US 4634592 A

L13: Entry 18 of 19 File: USPT Jan 6, 1987

US-PAT-NO: 4634592
DOCUMENT-IDENTIFIER: US 4634592 A

TITLE: Process for the manufacture of aquatic bait blocks

DATE-ISSUED: January 6, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Faber; Jerry L.	Decatur	IN	N/A	N/A
Kent, Jr.; Richard W.	Ft. Wayne	IN	N/A	N/A

US-CL-CURRENT: 426/1; 426/658, 426/805

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 19. Document ID: US 3989847 A

L13: Entry 19 of 19 File: USPT Nov 2, 1976

US-PAT-NO: 3989847
DOCUMENT-IDENTIFIER: US 3989847 A

TITLE: Process for preparation of seasonings derived from animal meat

DATE-ISSUED: November 2, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kurihara; Shinji	Fukuyama, Hiroshima	N/A	N/A	JA
Osazima; Kazuharu	Fukuyama, Hiroshima	N/A	N/A	JA

US-CL-CURRENT: 426/7; 426/533, 426/55

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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Generate Collection

Terms	Documents
(crustacean? and fish)and (feedstuff)	19

Display 10 Documents, starting with Document: 19

Display Format: CIT Change Format

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Search Results - Record(s) 1 through 8 of 8 returned.

☐ 1. Document ID: US 6184027 B1

L14: Entry 1 of 8 File: USPT Feb 6, 2001

US-PAT-NO: 6184027
DOCUMENT-IDENTIFIER: US 6184027 B1

TITLE: Isolation and purification of eubacteria and fungus with catalytically inactive murein binding enzymes

DATE-ISSUED: February 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Laine; Roger A.	Baton Rouge	LA	N/A	N/A
Lo; Wai Chun.Jennifer	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 435/261

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 6159719 A

L14: Entry 2 of 8 File: USPT Dec 12, 2000

US-PAT-NO: 6159719
DOCUMENT-IDENTIFIER: US 6159719 A

TITLE: Pan-bacterial and pan-fungal identification reagents and methods of use thereof

DATE-ISSUED: December 12, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Laine; Roger A.	Baton Rouge	LA	N/A	N/A
Jennifer Lo; Wai Chun	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 435/206; 435/18, 435/7.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 3. Document ID: US 6156568 A

L14: Entry 3 of 8 File: USPT Dec 5, 2000

US-PAT-NO: 6156568
DOCUMENT-IDENTIFIER: US 6156568 A

TITLE: Transformed eukaryotic cells

DATE-ISSUED: December 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cooper; Richard K.	Baton Rouge	LA	N/A	N/A
Enright; Frederick M.	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 435/325; 435/320.1, 435/410, 435/455, 435/468, 435/6, 435/69.1, 536/23.1, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 4. Document ID: US 6143883 A

L14: Entry 4 of 8 File: USPT Nov 7, 2000

US-PAT-NO: 6143883
DOCUMENT-IDENTIFIER: US 6143883 A

TITLE: Water-soluble low molecular weight beta-glucans for modulating immunological responses in mammalian system

DATE-ISSUED: November 7, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lehmann; Joachim	Scottsdale	AZ	N/A	N/A
Kunze; Rudolf	Berlin	N/A	N/A	DEX

US-CL-CURRENT: 536/55.3; 435/18, 435/7.31, 536/123.1, 536/123.12, 536/124, 536/127, 536/55.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 5. Document ID: US 6090573 A

L14: Entry 5 of 8 File: USPT Jul 18, 2000

US-PAT-NO: 6090573
DOCUMENT-IDENTIFIER: US 6090573 A

TITLE: Detecting eubacteria and fungus and determining their antibiotic sensitivity by using catalytically inactive murein binding enzymes

DATE-ISSUED: July 18, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Laine; Roger A.	Baton Rouge	LA	70808	N/A
Lo; Wai Chun Jennifer	Baton Rouge	LA	70808	N/A

US-CL-CURRENT: 435/32; 435/18, 435/206, 435/29, 435/34

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 5998698 A

L14: Entry 6 of 8 File: USPT Dec 7, 1999

US-PAT-NO: 5998698
DOCUMENT-IDENTIFIER: US 5998698 A

TITLE: Transgenic fish capable of expressing exogenous lytic peptides

DATE-ISSUED: December 7, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cooper; Richard K.	Baton Rouge	LA	N/A	N/A
Enright; Frederick M.	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 800/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 7. Document ID: US 5935804 A

L14: Entry 7 of 8 File: USPT Aug 10, 1999

US-PAT-NO: 5935804
DOCUMENT-IDENTIFIER: US 5935804 A

TITLE: Method for detecting eubacteria in biological samples with catalytically inactive murein binding enzymes

DATE-ISSUED: August 10, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Laine; Roger A.	Baton Rouge	LA	70808	N/A
Lo; Wai C. J.	Baton Rouge	LA	70808	N/A

US-CL-CURRENT: 435/18; 435/206, 435/29

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 8. Document ID: US 5719055 A

L14: Entry 8 of 8 File: USPT Feb 17, 1998

US-PAT-NO: 5719055
DOCUMENT-IDENTIFIER: US 5719055 A

TITLE: Transposon-based transformation vectors

DATE-ISSUED: February 17, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cooper; Richard K.	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 435/320.1; 435/252.33, 536/23.2, 536/23.7, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

Generate Collection

Terms	Documents
(crustacean? and fish)and (lipopolysaccharide)	8

Display 10 Documents, starting with Document: 8

Display Format: CIT Change Format

WEST

Generate Collection

Search Results - Record(s) 1 through 10 of 65 returned.

☐ 1. Document ID: US 6210567 B1

L2: Entry 1 of 65 File: USPT Apr 3, 2001

US-PAT-NO: 6210567
DOCUMENT-IDENTIFIER: US 6210567 B1

TITLE: Filtration device for tank water for aquarium fish

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Takada; Shunsuke	Meguro-ku, Tokyo	N/A	N/A	JPX

US-CL-CURRENT: 210/169; 119/227, 119/260, 210/252, 210/282, 210/287, 210/336

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 6160023 A

L2: Entry 2 of 65 File: USPT Dec 12, 2000

US-PAT-NO: 6160023
DOCUMENT-IDENTIFIER: US 6160023 A

TITLE: Use of bronopol for the treatment of diseases in fish

DATE-ISSUED: December 12, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Braidwood; Julian Charles	Cumbria	N/A	N/A	GBX

US-CL-CURRENT: 514/727

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

☐ 3. Document ID: US 6156568 A

L2: Entry 3 of 65 File: USPT Dec 5, 2000

US-PAT-NO: 6156568
DOCUMENT-IDENTIFIER: US 6156568 A

TITLE: Transformed eukaryotic cells

DATE-ISSUED: December 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cooper; Richard K.	Baton Rouge	LA	N/A	N/A
Enright; Frederick M.	Baton Rouge	LA	N/A	N/A

US-CL-CURRENT: 435/325; 435/320.1, 435/410, 435/455, 435/468, 435/6, 435/69.1, 536/23.1, 536/24.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 4. Document ID: US 6139731 A

L2: Entry 4 of 65 File: USPT Oct 31, 2000

US-PAT-NO: 6139731
DOCUMENT-IDENTIFIER: US 6139731 A

TITLE: Iodinated water treatment process

DATE-ISSUED: October 31, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Harvey; Wayne A.	Dartmouth	N/A	N/A	CAX
Mullins; Terence F.	Dartmouth	N/A	N/A	CAX
MacDonald; Daniel J.	Dartmouth	N/A	N/A	CAX

US-CL-CURRENT: 210/175; 210/192, 210/205, 210/742

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 5. Document ID: US 6086755 A

L2: Entry 5 of 65 File: USPT Jul 11, 2000

US-PAT-NO: 6086755
DOCUMENT-IDENTIFIER: US 6086755 A

TITLE: Floating hydroponic biofiltration device

DATE-ISSUED: July 11, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tepper; Julius	Manoville	NY	11949	N/A

US-CL-CURRENT: 210/150; 119/260, 210/169, 210/170, 210/242.1, 210/602, 47/64

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

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☐ 6. Document ID: US 6065430 A

L2: Entry 6 of 65 File: USPT May 23, 2000

US-PAT-NO: 6065430
DOCUMENT-IDENTIFIER: US 6065430 A

TITLE: Fish culturing system

DATE-ISSUED: May 23, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sheriff; Richard L.	Chester	PA	21619	N/A

US-CL-CURRENT: 119/227

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. Desc | Image

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☐ 7. Document ID: US 6062170 A

L2: Entry 7 of 65 File: USPT May 16, 2000

US-PAT-NO: 6062170
DOCUMENT-IDENTIFIER: US 6062170 A

TITLE: Method and apparatus for plankton reduction in fish farming

DATE-ISSUED: May 16, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Finch; Richard John	Campbell River	N/A	N/A	CAX
Davidson; D'Arcy	Victoria	N/A	N/A	CAX
Lueck; Rolf	Victoria	N/A	N/A	CAX

US-CL-CURRENT: 119/215; 114/222, 119/240

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 8. Document ID: US 6041738 A

L2: Entry 8 of 65 File: USPT Mar 28, 2000

US-PAT-NO: 6041738
DOCUMENT-IDENTIFIER: US 6041738 A

TITLE: Fish pond methods and systems

DATE-ISSUED: March 28, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hemauer; Thomas Joseph	Chilton	WI	N/A	N/A
Niquette; Daniel John	Chilton	WI	N/A	N/A

US-CL-CURRENT: 119/226; 119/227

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 9. Document ID: US 6025008 A

L2: Entry 9 of 65 File: USPT Feb 15, 2000

US-PAT-NO: 6025008
DOCUMENT-IDENTIFIER: US 6025008 A

TITLE: Yogurt

DATE-ISSUED: February 15, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Akahoshi; Ryoichi	Tokyo	N/A	N/A	JPX
Mizobuchi; Takahiro	Tokyo	N/A	N/A	JPX
Takahashi; Yoshihiro	Tokyo	N/A	N/A	JPX
Saita; Taketsugu	Tokyo	N/A	N/A	JPX

US-CL-CURRENT: 426/583; 426/34, 426/580, 426/585

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☑ 10. Document ID: US 6017722 A

L2: Entry 10 of 65 File: USPT Jan 25, 2000

US-PAT-NO: 6017722
DOCUMENT-IDENTIFIER: US 6017722 A

TITLE: Luminous bacteria and methods for the isolation, identification and quantitation of toxicants

DATE-ISSUED: January 25, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Becvar; James E.	El Paso	TX	N/A	N/A
Becvar; Laura E.	El Paso	TX	N/A	N/A

US-CL-CURRENT: 435/8; 210/658, 422/52, 422/61, 422/68.1, 435/29, 435/909, 436/162, 436/172

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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Generate Collection

Terms	Documents
(gram negative bacteria)[AB] AND (fish)[AB]	65

Display 10 Documents, starting with Document: 11

WEST

End of Result Set

Generate Collection

L22: Entry 1 of 1 File: USPT Sep 17, 1996

US-PAT-NO: 5556625
DOCUMENT-IDENTIFIER: US 5556625 A

TITLE: Pharmaceutical composition comprising Rosa roxburghii, Artemisi argyi folium and Brassica oleracea var. capitata L. used to reduce the symptoms of diarrhea

DATE-ISSUED: September 17, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Araki; Seiichi	Ibaraki	N/A	N/A	JPX
Suzuki; Mamoru	Ibaraki	N/A	N/A	JPX
Fujimoto; Masatoshi	Ibaraki	N/A	N/A	JPX
Ueki; Tadashi	Tokyo	N/A	N/A	JPX

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Eisai Co., Ltd.	Tokyo	N/A	N/A	JPX	03

APPL-NO: 8/ 433312
DATE FILED: May 3, 1995

PARENT-CASE:
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JP	4-291995	October 7, 1992
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PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	3108040	October 1963	Folkers	167/55
☐	5091195	February 1992	Havens	426/2
☐	5162037	November 1992	Whitson-Fischman	600/12

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ART-UNIT: 188

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ABSTRACT:

A method of reducing the symptoms of diarrhea by administering to an animal a composition containing Rosa roxburghii, Artemisiae argyi foli and Brassica oleracea var. capitata L.

4 Claims, 0 Drawing figures
Exemplary Claim Number: 1

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a medicinal agent or food which potentiates the immune system of an animal, including a human being, t thereby protect the animal from infection, and a feed or feedstuff hav an immunopotentiating activity.

The present invention also relates to a medicinal agent or food for regulating a function of the digestive tract or gastrointestine of an

animal, including a human being, and a feed or feedstuff having the activity of regulating the function of the digestive tract or gastrointestine of an animal.

Further, the present invention relates to a medicinal agent for improv antibiotic absorption by an animal, including a human being, and a fee feedstuff for improving antibiotic absorption by an animal.

Furthermore, the present invention relates to a medicinal agent for accelerating an animal growth or for improving an egg production rate, weight, egg quality or eggshell strength of an animal and a feed or feedstuff having the activity of accelerating an animal growth or the activity of improving an egg production rate, egg weight, egg quality eggshell strength of an animal.

2. Description of the Related Art

With the recent progress in immunology, it has come to be thought that various maladies and infectious diseases of an animal including a huma being, are caused by a weakening or deficiency in the immune system of animal.

For example, a human being frequently suffers from a weakening or deficiency in his immune system because of bronchial asthma, allergic diseases, articular rheumatism, autoimmune diseases, nutritional disorders, surgical operation, aging, cancer, organ transplantation, pregnancy or the like, resulting in the complication of an infectious disease such as respiratory infections, sepsis or urinary infections.

Up to this time, various antibiotics have been administered to patient with such maladies or infectious diseases. Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandr and aquaculture in order to raise livestock, poultries or fish efficiently, and in such raising, it has been also a practice to administer a high dose of an antibiotic.

The repeated administration of an antibiotic for a long period causes generation of antibiotic resistant bacteria to lower the effect of the antibiotic. Further, hospital infection has also become a significant problem. Under these circumstances, it has been expected to develop a preventive and therapeutic agent which can potentiate the immune syste while reducing the dosage of an antibiotic.

Further the overcrowded raising employed in the fields of animal husba and aquaculture has a problem in that various infectious diseases frequently break out because of stress or Juvenile immuno-deficiency. Furthermore, when a high dose of an antibiotic is administered as a countermeasure against the problem, there occur other problems, for example the antibiotic is not completely consumed and antibiotic resis bacteria propagate in the environment.

Recently, animals, including human beings, have frequently suffered fr various gastrointestinal diseases which are caused by a lowering or deficiency in the immune system, stress, dyspepsia or the like, and mo of which are accompanied with diarrhea.

For example, a human being becomes susceptible to an infectious diseas

the digestive tract as his resistance lowers, and representative examp of the infectious disease include bacterial, viral and parasitic diarr Further, the above gastrointestinal diseases also include acute diarrh caused by food poisoning and food allergy and chronic diarrhea caused disorder of digestion and absorption, excess gut hormone and colic diseases.

It has been the practice to administer an intestinal depressomotor for intestines, an astringent, an irritant-absorbing agent, a torpent for enteric mucous membranes or various antibiotics against these gastrointestinal diseases.

Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandry and aquaculture to raise livestock, poultry fish efficiently. In such raising, it has been a practice to administe the above therapeutic agents for the treatment of diarrhea caused by stress or dyspepsia. Particularly, a large amount of an antibiotic has been used for the prevention of infectious diseases.

The administration of the above depressomotor or astringent is essenti a nosotropic means, while that of an antibiotic is an etiotropic one. However, the repeated administration of an antibiotic for the preventi of infectious diseases has a problem that the preventive effect lowers owing to the generation of antibiotic resistant bacteria.

Under these circumstances, it has been expected to develop a novel preventive and therapeutic agent which can regulate gastrointestinal functions themselves and is safe.

Up to this time, various antibiotics have been administered to patient with various maladies or infectious diseases. Meanwhile, large-scale o overcrowded raising has been employed in the fields of animal husbandr and aquaculture to raise livestock, poultries or fish efficiently. In raising, it has been a practice to administer a high dose of an antibiotic.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic accumulates in the body of an an to affect the body and that the administration of a more potent antibi becomes necessary because of the generation of antibiotic resistant bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. Under these circumstances, i has been expected that the dose of the antibiotic to be administered i reduced. In order to reduce the dose of the antibiotic, it has been believed effective that the absorption of the antibiotic through the digestive tract should be enhanced to attain an effect equal or superi to that attained by the administration thereof in a high dose, even wh the antibiotic is administered in a low dose. However, no substance wh can improve the absorption of an antibiotic has been found as yet.

In preparing animal feed, various attempts have been widely made at improving the feeding efficiency for animals and also at accelerating growth thereof by adding various antibiotics to the feed, incorporatin increased amount of proteins into the feed, changing the feeding metho improving the dosage form of the feed.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic remains or accumulates in the bo of an animal to affect the body and that the administration of a more potent antibiotic becomes necessary because of the generation of resis bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. In addition, the effects obtained by varying the feeding method and the dosage form of the feed limited. Under these circumstances, it is necessary to develop a safe less problematic animal growth accelerator, feed and improver for the production ratio, egg weight, egg quality or eggshell strength of anim

DISCLOSURE OF THE INVENTION

Summary of the Invention

In view of the above problems, the present inventors have extensively studied for many years and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are useful for overcoming the problems. The present invention has been accomplished o the basis of this finding.

Thus, the present invention provides;

(1) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(2) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat L.;

(3) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L.;

(4) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. and a basal diet;

(5) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to an animal: and

(6) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a basal diet to an animal.

In view of the above problems with respect to the use of antibiotics, present inventors have extensively studied for many years on protectiv agents which are safe for animals and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. have an immunopotentiating activity. The present invention has been accomplish on the basis of this finding.

Thus, the present invention provides;

(7) a method for immunopotentiating and protecting from infectious diseases, which comprises administering a pharmacologically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat to an animal;

(8) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for immunopotentiating and protecting from infectious diseases;

(9) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for immunopotentiating and protecting from infectious diseases in an animal;

(10) a pharmaceutical composition for immunopotentiating and protectin from infectious diseases in an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(11) a medicinal agent for immunopotentiating and protecting from infectious diseases of an animal, comprising a substance selected from group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. and a pharmaceutically acceptable carrier; a

(12) a feedstuff for an animal, which is useful for immunopotentiating protecting from infectious diseases in an animal, comprising a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L.

In view of the above problem, the present inventors have extensively studied for many years regulating agents for the digestive tract which safe for human beings and animals, and have found that Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. have th activity of regulating gastrointestinal functions. The present inventi has been accomplished on the basis of this finding.

Thus, the present invention provides;

(13) a method for regulating the digestive tract, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyl folium Brassica oleracea var. capitata L. to an animal;

(14) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for regulating the digestive tr

(15) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for regulating the digestive tract of an animal;

(16) a pharmaceutical composition for regulating the digestive tract o animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(17) a medicinal agent for regulating the digestive tract of an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(18) a feedstuff for an animal, which is useful for regulating the digestive tract of the animal, comprising a substance selected from th group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L.

To provide an absorbefacient which enables a reduction in the dose of antibiotic when administered together with the antibiotic, the present inventors have extensively studied to find out that the absorption of antibiotic can surprisingly be improved when Rosa roxburghii alone or or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are administered simultaneously with the antibiotic or before or after the administrati of the antibiotic.

Thus, the present invention provides;

(19) a method for improving antibiotic absorption, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to an animal;

(20) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for improving its antibiotic absorption;

(21) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving antibiotic absorption in an animal;

(22) a pharmaceutical composition for improving antibiotic absorption an animal, comprising a pharmaceutically effective amount of a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(23) a medicinal agent for improving antibiotic absorption in an anima comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(24) a feedstuff for an animal, which is useful for improving antibiot absorption in the animal, comprising a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.

To provide a feedstuff free from the abovementioned defects of an ordi feedstuff and a method of administering the feedstuff to animals, the present inventors have extensively studied. As a result, they have fou that the growth of animals, including fetuses, is surprisingly acceler by administering Rosa roxburghii alone or two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L. to them. The inventors have further found that an improvement in the egg production rate, egg weight, egg quality or eggshell strength of birds and fishes is also accelerated.

Thus, the present invention provides;

(25) a method for accelerating growth of an animal, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to the animal;

(26) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for accelerating growth of the animal;

(27) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for accelerating growth of an animal;

(28) a pharmaceutical composition for accelerating the growth of an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(29) a medicinal agent for accelerating the growth of an animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(30) a feedstuff for an animal, which is useful for accelerating the growth of the animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.;

(31) a method for improving an egg production rate, egg weight egg qua or eggshell strength of an animal, which comprises administering a pharmacologically effective amount of a substance selected from the gr consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the animal;

(32) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine of an animal for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal;

(33) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving an egg production rate, egg weight, egg quality or eggsh

strength of an animal;

(34) a pharmaceutical composition for improving an egg production rate egg weight, egg quality or eggshell strength of an animal comprising a pharmaceutically effective amount of a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(35) a medicinal agent for improving an egg production rate, egg weigh egg quality or eggshell strength of an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier; and

(36) a feedstuff for an animal, which is useful for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal, comprising a substance selected from the group consisting of R roxburghii, Artemisiae argyl folium and Brassica oleracea var. capitat

Further scope and applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific exampl while indicating preferred embodiments of the invention, are given by of illustration only, since various changes and modifications within t spirit and scope of the invention will become apparent to those skille the art from this detailed description.

DETAILED DESCRIPTION OF THE INVENTION

Rosa roxburghii is a perennial shrub of the family Rosaceae and native Guizhou in China and its fruit has been noticed as the material of jui jam or liquor. The fruit of Rosa roxburghii has been known to have a pharmacological activity and is useful as an antiulcer agent by virtue its cancer-preventing, cholesterol level-lowering and antistress activities.

Artemisiae argyi folium is a plant of the family Compositae and has be known to be useful as an antidiarrheal or antiabdominalgia agent, a hemostatic or the like. Further, this plant has been known to exhibit low antimicrobial activity only against Gram-positive bacteria. Artemi argyi folium includes, for example, Artemisia princeps Pampanini, Artemisia mongolia Fischer, Artemisia argyi LEVL. et VANT., and Artemi lavandulaefolia DC.

Brassica oleracea var. capitata L. is a plant of the family Cruciferae has been used as food.

The Rosa roxburghii to be used in the present invention is not particularly limited in form, but may have any form so far as it conta the essences of Rosa roxburghii. Generally, the fruit of Rosa roxburgh may be used in its raw state or as a dry powder prepared by convention means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

The Artemisiae argyi folium and Brassica oleracea var. capitata L. to used in the present invention are not particularly limited in form, bu

may have any form so far as it contains the essences thereof. Generall the leaf of Artemisiae argyi folium or Brassica oleracea var. capitata may be used in a raw state or as a dry powder prepared by a convention means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

An extract from the above leaves can be prepared by, e.g., a process w comprises immersing 1 part by weight of the raw material in 5 parts by weight of water, boiling the obtained mixture under heating for 30 min to conduct extraction, filtering the resulting system, and concentrati the obtained filtrate to 3.6 parts by weight. The obtained extract may powdered by spray drying, freeze drying, vacuum drying (vacuum concentration) or the like.

When an organic solvent is used for extraction, methanol, ethanol, n-propanol, n-butanol, acetone, ethyl acetate, ether, methylene chlori chloroform, benzene, carbon tetrachloride and petroleum ether are preferable. These organic solvents may be used alone or as a mixture o two or more of them.

The extracts thus produced may be used as such or may be concentrated, diluted or freed from the solvent prior to use.

The extract of Rosa roxburghii to be used in the present invention may one commercially available under the trade name of "Rosa roxburghii extract powder MF"; which is a product of Maruzen Seiyaku K. K. compri 30% of an extract of Rosa roxburghii and 70% of dextrin.

In the present invention, at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. is used.

When Rosa roxburghii and Artemisiae argyi folium are used in the prese invention, the ratio between them is not particularly limited. General Artemisiae argyi folium is used, in terms of raw leaf, that is, when i prescribed as the weight of raw leaf, in an amount of 0.25 to 400 part weight, preferably 0.5 to 200 parts by weight, still preferably 1 to 1 parts by weight, based on 1 part by weight of the extract of Rosa roxburghii.

When both Artemisiae argyi folium and Brassica oleracea var. capitata are used together with Rosa roxburghii, the amounts thereof are not particularly limited. Generally, Artemisiae argyi folium and Brassica oleracea var. capitata L. are used in amounts of 0.25 to 400 parts by weight and 0.5 to 800 parts by weight, respectively, in terms of their respective raw leaf, based on 1 part by weight of the extract of Rosa roxburghii. It is preferable that Artemisiae argyi folium and Brassica oleracea var. capitata L. be used in amounts of 0.5 to 200 parts by we and 1 to 400 parts by weight respectively, still preferably in amounts 1 to 100 parts by weight and 5 to 200 parts by weight respectively.

The pharmaceutical composition or the medicinal agent of the present invention may be administered, with the purpose of the prevention of diseases, as a food having a regulating effect on a living body, i.e., so-called functional food, which can be prepared by adding this composition or agent to food.

When the pharmaceutical composition or the medicinal agent of the pres

invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used as a medicine or so-called health food, it may be in the form tablet, granule, powder, capsule or syrup. The pharmaceutical composit or the medicinal agent is prepared by mixing the members with a conventional filler or carrier, binder, lubricant or the like and trea the obtained mixture in the conventional manner.

When the pharmaceutical composition or the medicinal agent of the pres invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used for an animal, such as a mammal, a bird and a fish, especially a livestock, the dosage form thereof is not particularly limited. For example, it may be administered to livestock in a state mixed with a b diet (or feed or feedstuff). That is, this composition or agent may be mixed with a basal diet (or feed or feedstuff) just before using or ma premixed with a basal diet (or feed or feedstuff). In other words, the feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be administered an animal as a feed having a biophylactic and regulating function.

The arbitrary basal diet for animals, which is used for preparing the feedstuff according to the present invention, is not particularly limi Examples of the raw materials constituting the basal diet include grai such as corn, milo and wheat flour, brans such as defatted rice bran a wheat bran, animal substances such as fish meal and skim milk, vegetab oil cake such as soybean oil cake, and additives such as calcium carbonate, calcium phosphate, common salt, vitamin B.sub.2, DL-methion choline chloride, manganese sulfate, dry iron sulfate, calcium iodate, copper sulfate, dry zinc sulfate and sodium saccharin. The basal diet be prepared by blending some members selected from among these materia The formulation of the basal diet varies depending upon the animal to which the diet is administered.

The improved feed of the present invention, i.e., the feedstuff contai at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. can be administered to various livestock, poultries, pets and fish. Livestock includes pig, cattle, horse, goat, sheep and rabbit; poultry includes chicken, Japanese quail, turkey and duck; pets includes dogs and cats; and fish includes yellowtail, sea bream, flatfish, globefish, hardtail, amberjack, salmon, carp, eel, sweetfish, trout, char and lobster.

Needless to say, the pharmaceutical composition, the medicinal agent a the feedstuff of the present invention are non-toxic.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for immunopotentiating and protecting from infectious diseases.

In this case, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be used alone or as a combination of two more of them. In other words, the combination of Rosa roxburghii with Artemisiae argyi folium , that of Rosa roxburghii with Brassica olerac var. capitata L., that of Artemisiae argyi folium with Brassica olerac var. capitata L., and that of Rosa roxburghii with Artemisiae argyi fo

and Brassica oleracea var. capitata L. can be used.

Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. exhibit an immunopotentiating and protective activity even when used each alone. However, the use of a combination of two or more them surprisingly exhibits an immunopotentiating and protective activi which is higher than that of the use of each of them.

The pharmaceutical composition or the medicinal agent of the present invention can safely and effectively potentiate the immune function of livestock such as cattle, pigs or horses, poultry such as chicken or Japanese quail, fish such as young yellowtail, sea bream, eel, trout, or goldfish, pets such as dogs or cats, or a human being to protect th animal or the like -From various infectious diseases, which is one of objects of the present invention.

The term "immunopotentiation" used in this specification means "potentiation of the immune function of an animal such as a human bein mammal, fish or the like".

The pharmaceutical composition or the medicinal agent of the present invention have the effect of enhancing the immune function of an anima including a human being, and serves as a preventive and therapeutic pharmaceutical composition or agent for various maladies and infectiou diseases by virtue of this effect, so that the diseases against which composition or agent is efficacious are not particularly limited. For example, it is efficacious against, e.g., articular rheumatism, autoim diseases, bronchial asthma, nutritional disorders, surgical operation, diseases of old age and various infectious diseases such as respirator infection, sepsis and urinary infection with respect to a human being.

With respect to animals other than the humans, this composition or age is efficacious against scours, epizootic pneumonia, atrophic thiniris infectious enterogastritis of a pig, pneumonia and Marek's disease of chicken, scours, pneumonia and mastiris of cattle, and AIDS and leukem of a pet.

Further, with respect to fish, the infectious disease against which th composition or agent of the present invention is efficacious is not particularly limited and includes bacterial diseases such as streptoco and nodosity, and vital diseases.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 25 mg or above, preferably 50 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for regulating a function of the digestive tract.

In this case, Rosa roxburghii is preferably used as the essential component. The activity of regulating the function(s) of the digestive tract, i.e., the gastrointestinal function(s) regulating activity, of

pharmaceutical composition or the medicinal agent is synergistically enhanced when the composition or agent further contains Artemisiae arg folium or Artemisiae argyl folium and Brassica oleracea var. capitata The pharmaceutical composition or the medicinal agent is also used as component of a feedstuff, and the feedstuff containing the pharmaceuti composition or the medicinal agent also exhibit the above-described gastrointestinal function regulating activity.

The pharmaceutical composition or the medicinal agent of the present invention can efficaciously and safely regulate the function(s) of the digestive tract of livestock such as cattle, pigs or horses, poultry s as chicken or Japanese quail, fish such as young yellowtail, sea bream eel, trout, carp or goldfish, a pet such as a dog or cat, or humans, w is one of the main objects of the present invention.

The term "digestive tract" to be used in this specification refers to organs ranging from the mouth to the anus, particularly to the stomach duodenum, small intestine, large intestine and rectum.

The term "function(s) of the digestive tract" or "gastrointestinal function(s)" used in this specification means digestion, absorption an digestive motion such as peristalsis. The pharmaceutical composition o the medicinal agent for the digestive tract according to the present invention is useful as a therapeutic and preventive pharmaceutical composition or agent for diarrhea when it acts on the lower part of th digestive tract, such as the large intestine or rectum, while it is efficacious in alleviating a sharp pain and in moderating gastic empty and borborygmus when it acts on the upper part thereof, such as the stomach or duodenum.

When the pharmaceutical composition or the medicinal agent for regulat the function(s) of the digestive tract is used as a therapeutic and preventive pharmaceutical composition or agent for diarrhea, it is efficacious against various diarrheas which are not limited in cause a examples of the diarrhea include bacterial diarrhea such as salmonello vital diarrhea such as caused by adenovirus, parasitic diarrhea such a amebic dysentery, toxic diarrhea such as food and drug poisoning, alle diarrhea caused by, e.g., food allergy, functional diarrhea such as co diarrhea and neurotic diarrhea, diarrhea caused by the use of an antibiotic (such as one caused by microbial substitution and staphylococcal diarrhea), and chronic diarrhea caused by the disorder digestion and absorption, excess gut hormone and colic diseases.

With respect to chickens and pigs, the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is efficacio against bacterial diarrhea such as caused by Escherichia coli or swine dysentery, vital diarrhea caused by TGE or rotavirus, or simple diarrh such as one caused by stress or dietetic diarrhea. Further, it is efficacious also against various diarrheas of fish.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 20 mg or above, preferably 40 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will be described that the pharmaceutical composition, the medicina agent or the feedstuff of the present invention is used for improving antibiotic absorption.

In this case, the pharmaceutical composition or the medicinal agent comprising Rosa roxburghii or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered simultaneously with an antibiotic or before or after the administration of an antibiotic. As pharmaceutical composition or the medicinal agent, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be administered by itself in a raw, dried or pulverized state, or a Formulation may be administered. Alternatively, the pharmaceutical composition or the medicinal agent may be added to food or feed in a conventional manner. Namely, the feedstuff comprising a basal diet and least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the basal diet described above. The amount of Rosa roxburghii, or the combination, is preferably 0.001% by weight or abov still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff f improving antibiotic absorption according to the present invention may administered simultaneously with an antibiotic or, before or after the administration of an antibiotic. In any case, the effect of improving absorption of an antibiotic can be attained.

In this case, the dose of Rosa roxburghii or a combination of two or m members selected from among Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L. is not particularly limited but var depending upon the dosage form, the subject animal or the dose of the antibiotic.

For example, when the pharmaceutical composition or the medicinal agen for improving antibiotic absorption comprising two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered to livestock such as a pig a powdered extract, the powdered extract is administered in an amount of part by weight or above, preferably 1 part by weight or above, still preferably 3 parts by weight or above based on 1 part by weight of the antibiotic administered. When Rosa roxburghii is administered alone, t amount thereof may be the same as that described above.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for accelerating growth of an animal or improving an egg production rate, weight, egg quality or eggshell strength.

One of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstuff for accelerat growth of an animal, a novel pharmaceutical composition, medicinal age

or feedstuff for improving the egg production rate, egg weight, egg quality or eggshell strength of animals, and a method for administerin them to animals.

More specifically, one of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstu which can accelerate an increase in the body weight and can improve th survival rate feed conversion ratio of animals, and a novel pharmaceut composition, medicinal agent or feedstuff which can improve the surviv rate, egg production rate, egg weight, egg quality, eggshell strength feed conversion ratio of animals.

The term "growth acceleration" or "accelerating growth of an animal" a used herein includes also growth improvement and growth acceleration o fetuses. The expression "improvement in the egg production rate, egg weight, egg quality and eggshell strength" means an improvement in the production rate, an increase in the egg weight, and improvements in th eggshell and egg quality.

In this case, Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., preferably a combination of the th as the active ingredient is administered to animals. Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. can be administered directly to animals or they can be incorporated in the feedstuff or Feed by an ordinary method. Namely, the feedstuff compris a basal diet and at least one of Rosa roxburghii, Artemisiae argyi fol and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. to the basal diet described above. The amount of Rosa roxburghii or the combination is preferably 0.001% by weight or above, still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff accelerates the growth of animals, and improves the rate of raising or Feed conversion rate. When it is administered to birds and fish, it accelerates an improvement in the egg production rate, egg weight, egg quality or eggshell strength of them.

The dose of Rosa roxburghii is not particularly limited in this case, since it varies depending on the dosage form thereof and the subject animal.

When Rosa roxburghii extract is administered to livestock, such as cat and pigs, the amount thereof is usually at least 10 mg, preferably at least 50 mg and still preferably at least 100 mg, based on 1 kilogram the body weight thereof.

DETAILED DESCRIPTION:

EXAMPLES

The present invention will now be described in more detail with refere to the following Examples which should not be considered to limit the scope of the present invention.

In the Examples, the description of the dose of each component, e.g., mg/kg p.o." means oral administration in a dose of 10 mg per kilogram body weight. Further, the symbols "*" and "**" used in the column of t x.sup.2 test in the Tables mean p<0.05 and p<0.01, respectively.

The Rosa roxburghii used in Examples A-1, B-1 and B-2 is one commercia available under the trade name of "Rosa roxburghii extract powder MF", which is a product of Maruzen Seiyaku K. K. comprising 30% of an extra of Rosa roxburghii and 70% dextrin. The dose of Rosa roxburghii is expressed in terms of the weight of this extract powder. The dose of Artemisiae argyi folium is expressed in terms of the weight of an extr thereof having 4-fold concentration with respect to its normal weight, while the dose of Brassica oleracea var. capitata L. is expressed in t of the weight of an extract thereof having a 9-fold concentration with respect to its normal weight.

EXAMPLE A-1

As shown in Tables A-1 and A-2, Rosa roxburghii, Artemisiae argyl foli and Brassica oleracea var. capitata L. were each orally administered a (Table A-1), or as a mixture of two or more of them (Table A-2), to te SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 to 33 g) in doses of to 2000 mg/kg, while physiological saline was orally administered ther as a control. After 24 hours, clinically available Escherichia coli (5.0.times.10.sup.7 CFU/mouse, 0.2 ml) was intravenously inoculated in each mouse to determine the survival rate based on the number of viabl mice after 7 days from the infection. The results are given in Tables and A-2.

TABLE A-1 Survival Sample rate x.sup.2 test control (physiolog saline p.o.) 0 Artemisiae argyi folium 500 mg/Kg p.o. 20 Artemisiae ar folium 1000 mg/Kg p.o. 30 Artemisiae argyi folium 2000 mg/Kg p.o. 50 * Brassica oleracea var. capitata L. 500 mg/Kg 10 p.o. Brassica oleracea var. capitata L. 1000 mg/Kg 30 p.o. Brassica oleracea var. capitata L. 2000 mg/Kg 40 * p.p. Rosa roxburghii 500 mg/Kg p.o. 20 Rosa roxburghii 1000 mg/Kg p.o. 30 Rosa roxburghii 2000 mg/Kg p.o. 50

TABLE A-2 Survival Sample rate x.sup.2 test control (physiolog saline p.o.) 0 Artemisiae argyi folium 500 mg/Kg p.o. and 40 * Brassic oleracea var. capitata L. 500 mg/Kg p.o. Artemisiae argyi folium 1000 mg/Kg p.o. and 70 * Brassica oleracea var. capitata L. 1000 mg/Kg p.o. Artemisiae argyi folium 2000 mg/Kg p.o. and 100 ** Brassica oleracea v capitata L. 2000 mg/Kg p.o. Rosa roxburghii 500 mg/Kg p.o. and 60 * Artemisiae argyi folium 500 mg/Kg p.o. Rosa roxburghii 1000 mg/Kg p.o. 90 ** Artemisiae argyi folium 1000 mg/Kg p.o. Rosa roxburghii 2000 mg/ p.o. and 100 ** Artemisiae argyi folium 2000 mg/Kg p.o. Rosa roxburghi 500 mg/Kg p.o., 70 * Artemisiae argyi folium 500 mg/Kg p.o. and Brassi oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxburghii 1000 mg/Kg p. 100 ** Artemisiae argyi folium 1000 mg/Kg p.o. and Brassica oleracea v

capitata L. 1000 mg/Kg p.o.

As shown in Table A-1, the survival rate increases depending upon the of Rosa roxburghii, Artemisiae argyl folium or Brassica oleracea var. capitata L., which reveals that these plants have a protective effect.

As shown in Table A-2, the simultaneous use of Rosa roxburghii with Artemisiae argyi folium , that of Artemisiae argyi folium with Brassic oleracea var. capitata L. and that of Rosa roxburghii with Artemisiae argyl folium and Brassica oleracea var. capitata L. exhibit the protec effect exceeding the arithmetic sum of the respective effects of these plants. That is, the above simultaneous use exhibits a significant synergistic effect, being of great value.

The above test in Example A-1 reveals that the medicinal agent for immunopotentiating and protecting from infectious diseases of the pres invention has an excellent protective activity against Gram-negative bacteria, which suggests that the agent of the present invention is no one which exhibits a low antimicrobial activity only against Gram-posi bacteria like Artemisiae argyi folium , but one which potentiates the immune function itself. Accordingly, the agent of the present inventio effective in the prevention and treatment of various maladies and usef as a preventive and therapeutic agent for various infectious diseases as a functional food or feed. Thus, the present invention is of great value.

EXAMPLE B-1

As shown in Table B-1, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were each orally administered to si SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) in a dose of 125 500 mg/kg, while physiological saline was orally administered thereto control. After 30 minutes, 1 ml of caster oil was further orally administered to the rats to determine the time which elapsed until the occurrence of diarrhea and the total amount of excrement given within hours of the administration. The antidiarrheal index of each case was calculated from these values according to the following formula 1 to evaluate the antidiarrheal activity. The measured values and the antidiarrheal index are given in Table B-1. ##EQU1##

TABLE B-1

Sample	Time until the occurrence (min)	Total amount of excrement (g)	Anti-diarrheal index
control (physiologica	38.5 .+-. 5.9	6.7 .+-. 0.67	1.00
saline p.o.)			
Artemisiae argyi	53.3 .+	13.8	4.5 .+-. 0.83
2.06			
folium 125 mg/Kg p.o.			
Artemisiae argyi	71.8 .+	18.4	3.7 .+-. 1.09
3.38			
folium 250 mg/Kg p.o.			
Artemisiae argyi	95.8 .+	12.8	2.0 .+-. 0.68
8.33			
folium 500 mg/Kg p.o.			
Brassica oleracea var.	4 .+-.	7.9	5.9 .+-. 1.16
1.36			
capitata L. 125 mg/Kg p.o.			
Brassica olerac var.	49.5 .+-.	10.7	4.7 .+-. 1.14
1.83			
capitata L. 250 mg/Kg p.o.			
Bras oleracea var.	51.2 .+-.	8.2	3.8 .+-. 1.21
2.34			
capitata L. 500 mg/Kg p			
Rosa roxburghii	50.5 .+-.	10.0	4.2 .+-. 1.67
2.09			
125 mg/Kg p.o. Rosa			
roxburghii	68.3 .+-.	6.4	3.7 .+-. 0.80
3.21			
250 mg/Kg p.o. Rosa roxbur			
77.8 .+-.	14.4	1.8 .+-. 0.70	7.52
500 mg/Kg p.o.			

It was ascertained from the results given in Table B-1 that Artemisiae argyi folium, Rosa roxburghii and Brassica oleracea var. capitata L. h

antidiarrheal activity.

EXAMPLE B-2

As shown in Tables B-2 and B-3, two or more members selected from amon Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were orally administered to six SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) each in doses of 125 to 500 mg/kg, while physiological saline was orally administered thereto as a control. Aft 30 minutes, 1 ml of castor oil was further administered orally to the to determine the time elapsed until the occurrence of diarrhea and the total amount of the excrement given within 2 hours of the administrati The antidiarrheal index of each case was calculated from these values according to the above formula 1 to evaluate the antidiarrheal activit The measured values and the antidiarrheal index are given in Tables B- and B-3.

TABLE B-2 Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Artemisiae argyi 62.7 .+ 13.4 4.2 .+-. 1.02 2.60 folium 125 mg/Kg p.o. and Brassica oleracea va capitata L. 125 mg/Kg p.o. Artemisiae argyi 83.5 .+-. 15.3 3.2 .+-. 1. 4.54 folium 250 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 mg/Kg p.o. Artemisiae argyi 99.3 .+-. 13.2 1.8 .+-. 0.70 9.59 folium 5 mg/Kg p.o. and Brassica oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxburghii 78.4 .+-. 8.6 3.5 .+-. 1.73 3.89 125 mg/Kg p.o. and Artemis argyi folium 125 mg/Kg p.o. Rosa roxburghii 90.3 .+-. 12.4 2.6 .+-. 1. 6.04 500 mg/Kg p.o. and Artemisiae argyi folium 250 mg/Kg p.o. Rosa roxburghii 101.8 .+-. 14.3 1.6 .+-. 1.58 11.06 500 mg/Kg p.o. and Artemisiae argyi folium 500 mg/Kg p.o.

TABLE B-3 Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Rosa roxburghii 125 91.5 .+-. 17.4 3.5 .+-. 1.73 6.37 mg/Kg p.o., Artemisiae argyi folium 125 m p.o. and Brassica oleracea var. capitata L. 125 mg/Kg p.o. Rosa roxburghii, 250 102.0 .+-. 13.0 1.8 .+-. 0.70 9.85 mg/Kg p.o., Artemis argyi folium 250 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 mg/Kg p.o. Rosa roxburghii, 500 110.8 .+-. 14.0 1.3 .+-. 1.16 14.82 mg p.o., Artemisiae argyi folium 500 mg/Kg p.o. and Brassica oleracea var capitata L. 500 mg/Kg p.o.

It has been ascertained from the results given in Tables B-1 and B-2 t the simultaneous use of Rosa roxburghii with Artemisiae argyi folium exhibits a synergistic antidiarrheal activity, while it has been ascertained from the results given in Tables B-1 and B-3 that the simultaneous use of Rosa roxburghii with Artemisiae argyi folium and Brassica oleracea var. capitata L. also exhibits a synergistic antidiarrheal activity.

The above test in Examples B-1 and B-2 reveals that the medicinal agen for regulating a function of a digestive tract according to the presen invention has an excellent antidiarrheal activity. Accordingly, the medicinal agent for regulating a function of a digestive tract of the

present invention is effective in the prevention and treatment of diar caused by various diseases, and is useful as a preventive or therapeut agent for diarrhea or a functional food or feed. Thus, the present invention is of great value.

The mixture of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. used in the following Examples C-1, C-2, D-1 D-6 were prepared as follows:

Raw leaves (3 kg) of Artemisiae argyi folium were immersed in 15 l of water and the obtained mixture was boiled for 30 minutes to conduct extraction. The resulting mixture was filtered to recover a filtrate. filtrate was concentrated to 1.8 kg by heating to give an extract. Thi extract was powdered by spray drying to give a dry powder of the extra of Artemisiae argyi folium. Similarly, Brassica oleracea var. capitata was also converted into a dry powder of the extract thereof. 1500 g of Rosa roxburghii extract powder MF (a product of Maruzen Seiyaku K. K. comprising 30% of an extract of Rosa roxburghii and 70% of dextrin) wa mixed with 675 g of the above dry powder of the extract of Artemisiae argyi folium and 225 g of the above dry powder of the extract of Brass oleracea var. capitata L. to give 2400 g of a mixed powder (a weight r of Rosa roxburghii: Artemisiae argyi folium:Brassica oleracea var. capitata L. being 2:3:1).

EXAMPLE C-1

The above mixture of the dry powders or each of the dry powders was or administered to four SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 33 g) in a dose given in Table C-1 together with 10 mg per kilogram of body weight of amoxicillin (hereinafter referred to simply as "AMPC") an antibiotic. After 2 hours, blood was gathered from the mice to determine the serum AMPC concentrations, which were compared with thos mice to which AMPC alone had been administered. Each serum AMPC concentration was determined by using a strain of Sarcina luteas (Gram-positive and AMPC-sensitive bacterium) according to the disk met (this method of measurement was also employed in Example C-2).

The results are given in Table C-1.

TABLE C-1 _____ Serum AMPC concn. .mu.g/ml (figures in parentheses being ratio thereof to the concn. of control) _____ AMPC 10 mg/kg (control 2.12 .+-. 1.14 (1.00) AMPC 10 mg/kg + a mixed powder of Rosa roxburghi Artemisiae argyi folium 2.70 .+-. 1.22 (1.27) and Brassica oleracea va capitata L. 10 mg/kg AMPC 10 mg/kg + a mixed 3.04 .+-. 1.22 (1.43) pow of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 30 mg/kg AMPC 10 mg/kg + a mixed 3.11 .+-. 1.97 (1.47) pow of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 90 mg/kg AMPC 10 mg/kg + a mixed 3.53 .+-. 1.93 (1.67)* po of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 190 mg/kg AMPC 10 mg/kg + a mixed 5.62 .+-. 0.57 (2.65)** powder of Rosa roxburghii, Artemisiae argyi folium and Brassica olerac var. capitata L. 2000 mg/kg AMPC 10 mg/kg + Rosa 4.87 .+-. 1.81 (2.30) roxburghii 10 mg/kg AMPC 10 mg/kg + Artemisiae 2.95 .+-. 1.13 (1.39) a folium 10 mg/kg AMPC 10 mg/kg + Brassica 2.20 .+-. 1.11 (1.04) olerace var. capitata L. 10 mg/kg _____

As shown in Table C-1, the group of the mice to which AMPC and Rosa roxburghii had been administered and the groups of the mice to which A Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. had been administered were apparently improved in the absorption of AMPC depending upon the dose thereof as compared with th group of the mice to which AMPC alone and been administered.

EXAMPLE C-2

AMPC (10 mg/kg) alone or the mixture of AMPC (10 mg/kg) with the mixed powder (30 mg/kg) comprising Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered to six SPF male pi (age: 1 month, weight: about 15 kg) mixed with a basal diet to gather blood from the pigs after 0.5, 1, 2, 3 and 6 hours. The serum AMPC concentrations of the pigs to which AMPC and the mixed dry powder had administered were determined and compared with those of the pigs to wh AMPC alone had been administered.

The results are given in Table C-2.

The formulation of the above basal diet are given in Table C-3.

TABLE C-2 _____ after after after aft
after 0.5 hr 1 hr 2 hrs 3 hrs 6 hrs _____
AMPC 10 3.07 .+-. 6.03 .+-. 3.71 .+-. 2.10 .+-. 0.85 .+-. mg/kg (contr
1.55 0.80 0.63 0.40 0.75 AMPC 10 6.03 .+-. 7.81 .+-. 5.85 .+-. 3.71 .+
1.74 .+-. mg/kg + a 1.49 1.49 0.80 1.41 1.16 mixed powder (1.63)** (1.
(1.58)** (1.77)* (2.05)** of Rosa roxburghii, Artemisiae argyi folium
Brassica oleracea var. capitata L. 30 mg/kg
_____ note) Serum AMPC concentration,
.mu.g/ml The figures in parentheses are the ratios of the serum AMPC concentration to that of the control.

TABLE C-3 _____ Initiation of
Administration feeding to 5 5 to 7 weeks period weeks of age of age
Component Amt. (%) Amt. (%) _____ par
wheat 33.8 20.0 glucose 9.0 5.0 sugar 3.0 -- wheat flour -- 20.0 yello
corn -- 23.6 skimmilk powder 40.0 10.0 fish meal 3.0 5.0 soybean oil c
3.0 9.0 Torula yeast 2.0 2.0 soybean oil 4.0 3.0 common salt 0.2 0.2
tricalcium phosphate 1.2 1.4 mineral mixture 0.2 0.2 vitamin mixture 0
0.2 flavor, antibiotic and 0.4 0.4 other feed additives
_____

As shown in Table C-2, the pigs to which AMPC and the mixed powder had been administered were apparently improved in the absorption of AMPC o a period of 0.5 to 6 hours after the administration as compared with t pigs to which AMPC alone had been administered.

The results of the above tests suggest that the medicinal agent for improving antibiotic absorption and the feedstuff according to the pre invention are so efficacious in improving the absorption of an antibio that the dose of the antibiotic can be reduced. Accordingly, the prese invention is of great value.

EXAMPLE D-1

40 sound pigs (castrated pigs of about 10 days old; 3.0 to 3.5 kg) wer

divided into four groups, i.e., three groups each consisting of ten pi to which the mixed powder comprising Rosa roxburghii, Artemisiae argyl folium and Brassica oleracea var. capitata L. were administered and a control group consisting of ten pigs to which an ordinary basal diet f of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. was administered. A feedstuff enriched with the mixed powd of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. in amounts of 0.03, 0.1 or 0.3% by weight was administered the pigs of one of the three groups for 30 days. After 30 days, the in of the feedstuff and the gain of body weight were determined to calcul the rate of raising and the feed conversion ratio (feedstuff intake/ga of body weight). The results were compared with those of the control group.

The composition of the artificial milk-based basal diet for piglings w as shown in Table D-1.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th control group were compared with each other. The test was conducted fo the gain of body weight in the control group and the groups of the pre invention. Table D-2 shows the results.

TABLE D-1 Initiation of feeding 5 5 to 7 weeks Feeding period weeks of age of age Component Amt. (%) A (%) Roast wheat 33.8 20.0 Gluco 9.0 5.0 Sugar 3.0 -- Wheat flour -- 20.0 Yellow corn -- 23.6 Skim milk powder 40.0 10.0 Fish meal 3.0 5.0 Soybean oil cake 3.0 9.0 Torula yea 2.0 2.0 Soybean oil 4.0 3.0 Common salt 0.2 0.2 Tricalcium phosphate 1 1.4 Mineral mixture 0.2 0.2 Vitamin mixture 0.2 0.2 Flavor, antibiotic 0.4 and other feed additives

TABLE D-2 Gain of Feedstuff bod Feed intake weight conversion (A) (B) ratio Rate of Group (kg/pig) (kg/pig) (A/B) raising Test gro 11.24 5.3 .+-. 1.33** 2.12 88.8% (0.03%) Test group 11.79 6.3 .+-. 1.6 1.87 93.0% (0.1%) Test group 12.32 5.7 .+-. 1.04* 2.16 100% (0.3%) Con 8.50 3.4 .+-. 1.15 2.50 81.9% group

The gain of body weight per pig in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the feed conversion ratio and the rate of raising were increased in the former group.

EXAMPLE D-2

18 bull Holstein calves of about 7 days old were divided into three groups, i.e., two groups each consisting of six calves to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and a control group consisting of six calves to whic neither of Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L. was administered. The mixed powder of Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. was mix into a milk substitute for raising suckling calves and into a feedstuf containing a milk substitute (artificial milk) For raising suckling ca

in an amount of 0.125 or 0.25% by weight based on the basal diet. The substitute or the feedstuff was repeatedly administered for 20 days. T dose of the mixed powder was 2.5 g/day or 5 g/day per calf. Each calf weighed at the beginning of the test and after the completion of the t (after 20 days) to calculate the gain of body weight and the rate of b weight gain per day.

The composition of the feedstuff containing the milk substitute for raising suckling calves was as shown in Table D-3.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th of the control group are compared with each other. The t-test was conducted in the control group and the groups of the present invention

Table D-4 shows the results.

TABLE D-3 _____ Component Amt. (%) _____ Skim milk powder 60.0 Dry whey Animal fat or oil 20.0 Fish soluble 4.0 Vitamin mixture 0.5 Mineral mixture 0.7 _____

TABLE D-4 _____ Gain of body Gain of weight weight Group (kg/calf) (kg/calf/day) _____ Test group 41.0 .+-. 7.45** 2.0 .+-. 0.29** 2.5 g/day Test group 42.5 .+-. 5.69** 2.13 .+-. 0.27** 5.0 g/day Control 25.7 .+-. 8.32 1.29 .+-. 0.36 group

_____

The gain of body weight per day in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the rate o body weight gain was increased in the former group.

EXAMPLE D-3

80 pullet broilers (chunky) were divided into two groups, i.e., a grou consisting of 40 broilers to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and a control group consisting of 40 broilers to which neither of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat was administered.

The mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. was administered in an amount of 0.1% by wei based on the basal diet for broilers to the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered for 6 weeks. Each broiler was weighed at the beginni of the test and after 6 weeks. The average gain of body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and that in the control gr were calculated.

The composition of the basal diet for broilers was as shown in Table D

The results of the group to which Rosa roxburghii, Artemisiae argyi fo and Brassica oleracea var. capitata L. were administered and those of

control group are compared with each other. The x.sup.2 -test for the average gain of body weight was conducted in the control group and the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered.

Table D-6 shows the results.

TABLE D-5 Initiation of feeding to 5 5 to 6 to 3 weeks weeks of weeks of Feeding period of age age age Component Amt. (%) Amt. (%) Amt. (%)
Corn 50.45 55.30 55.34 Milo 10. 15.0 15.01 Soybean oil cake 18.0 13.0 13.01 Rapeseed oil cake -- 2.5 2 Fish meal 8.0 5.0 5.01 Fish soluble 2.0 -- -- Absorbent feed 3.0 -- -- Gluten meal Alfalfa meal 2.0 -- -- Torula yeast 1.0 -- -- Meat/bone me -- 3.0 3.0 Raw rice bran -- 2.0 2.0 Animal fat or oil 3.3 2.8 2.81 Com salt 0.25 0.25 0.25 Calcium carbonate 0.6 0.3 0.30 Dicalcium phosphate 0.5 0.5 Lysine -- -- -- Methionine 0.18 -- -- Vitamin mixture 0.1 0.1 Choline chloride 0.05 0.06 0.06 Mineral mixture 0.1 0.1 0.1 Flavor, antibiotic and 0.17 0.09 -- other feed additives

TABLE D-6 Av. body wt. at initiation Av. body wt. Av. gain of of feeding after 6 weeks body weig Group (g/broiler) (g/broiler) (g/broiler)
Test group 43.8 .+-. 0.08 2065 8.7 2021.7 .+-. 8.6** (0.1%) Control group 43.6 .+-. 0.07 1879 .+-. 10 1835.4 .+-. 10.1

The increase in the average body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was larger than that in the control group.

EXAMPLE D-4

12,000 young yellowtails having an average body weight of about 600 g divided into two groups, i.e., a group consisting of 6,000 young yellowtails to which Rosa roxburghii, Artemisiae argyi folium and Bras oleracea var. capitata L. were administered and a control group consis of 6,000 young yellowtails to which neither of Rosa roxburghii, Artemi argyl folium and Brassica oleracea var. capitata L. was administered. mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. was mixed with a basal diet for young yellowtails (moist pellets) in an amount of 0.5% by weight based on th basal diet and the resultant mixture was administered to them at inter of three days for one month. The results were compared with those of t control group. The young yellowtails were raised in a crawl having a s of about 3 m.times.3 m.times.3 m. During the test period, the feedstuf was administered once a day in an amount of about 3% by weight based o the body weight a day.

The composition of the basal diet for young yellowtails was as shown i Table D-7.

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and that in the control group were compared with eac other to evaluate the effect of improving the rate of raising. The x.s

-test was conducted in the control group and the group of the present invention.

The results are given in Table D-8.

TABLE D-7 Component Amt. (%)
Fish meal 56.0 Meat/bone meal 3 Soybean oil cake 5.0 Corn gluten meal 3.0 Torula yeast 2.0 Wheat flour 28.4 Vitamin mixture 1.0 Choline chloride 0.3 Inorg. mixture 1.0 Sodiu polyacrylate 0.3

TABLE D-8 No. of No. of died .
samples samples Group (fish) (fish)
Test group (0.1%) 6000 180 ** Control group 6000 750

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was far smaller than that in the control group to pr the effect of improving the rate of raising.

EXAMPLE D-5

0.01, 0.03 or 0.10% (based on the amount of the mixed extract powder comprising Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L.), used in a pellet for mice and rats, of a preparatio prepared by spraying an aqueous suspension of the mixed extract powder followed by drying, was used to form the pellet for mice and rats. Eac feedstuff containing Rosa roxburghii, Artemisiae argyi folium and Bras oleracea var. capitata L. thus prepared was administered to each group male slc:SD rats, which consisted of 8 rats of 21 days old (body weigh 50 to 57 g), for one month and then each rat was weighed to calculate rate of body weight gain.

The composition of the basal diet for rats (pellet) was as shown in Ta D-9.

The body weights of the rats weighed during the test period in the gro to which Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. were administered were compared with those in the con group to examine the effect on the gain of body weight in both groups. t-test was conducted in the control group and the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

The results are given in Table D-10

TABLE D-9 Component Amt. (%)
Casein 14.12 Corn starch 58.40 Glucose 12.83 Soybean oil 5.45 Cellulose 5.00 Minerals 4.00 Vitamins A D 0.10 Vitamin B 0.10

TABLE D-10

Average body weight (g) and rate of body weight gain in each group Gro week 1 week 2 weeks 3 weeks 4 weeks

Test group 52.9 .+-. 1.48 106.7 .+-. 4.29 162.4 .+-. 7.17 213.4 .+-. 6
258.2 .+-. 7.70 (0.03%) (1.00) (2.02) (3.06) (4.03) (4.86) * Test grou
53.2 .+-. 1.83 107.6 .+-. 3.77 162.6 .+-. 7.28 216.3 .+-. 9.41 258.5 .
10.96 (0.1%) (1.00) (2.02) (3.06) (4.07) (4.88) * Test group 53.7 .+-.
2.65 107.6 .+-. 3.23 166.7 .+-. 6.09 221.4 .+-. 10.61 270.2 .+-. 12.53
(0.3%) (1.00) (2.00) (3.10) (4.12) (5.03) ** Control group 53.8 .+-. 1
102.9 .+-. 5.23 157.3 .+-. 9.91 204.5 .+-. 13.41 241.9 .+-. 17.08 (1.0
(1.91) (2.92) (3.80) (4.50)

After the administration of Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., an increment in the rate of body weight gain of 0.23 to 0.53 was recognized depending on the dose, as compared with the control group.

EXAMPLE D-6

The tests were conducted twice by using groups of Dekalb-TX chickens o 182 days old (average body weight: 1.5 kg). Each group consisted of 8 chickens. The average results are given in Table D-11 and D-12. In the test, the chickens were divided into three groups, i.e., a group to wh 0.08% of the mixed powder of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered, a group to which of the mixed powder was administered, and the control group. The feedi was conducted for a period of 18 days.

After the completion of the feeding, body weight and egg weight determination, egg quality test and eggshell strength determination (w an eggshell strength meter) were conducted. Further, the feed conversi ratio (feedstuff intake/gain of body weight) was calculated.

The results are given in Tables D-11 and D-12.

TABLE D-11 Egg Feed prodn. Egg weight/day conversion Group rate (g/chicken .multidot. day) rate
Test group 79.7% 47.3 2.14 (0.0
Test group 79.3% 46.6 2.28 (0.1%) Control 74.2% 44.2 2.34 group
Note) Egg weight/day indicates total weight of eggs laid by a chicken a day

TABLE D-12 Eggshell Eggshell Eggshell strength thickness amount Group (kg/cm.sup.2) (mm) (wt. %)
Test group 3.40 0.358 10.6 (0.0
Test group 3.16 0.359 10.4 (0.1%) Control 3.12 0.374 10.5 group

---

It will be apparent from Table D-11 that the egg production rate, egg weight and feed conversion rate were increased more remarkably in the group to which Rosa roxburghii, Artemisiae argyl folium and Brassica oleracea var. capitata L. had been administered than those in the cont group.

It will be apparent from Table D-12 that as compared with the thicknes the eggshell, the eggshell strength was more increased in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. had been administered than that in the control group. The

results promise the prevention of egg cracking.

One embodiment of the present invention provides a medicinal agent or animal feedstuff for accelerating growth of an animal which comprises roxburghii alone or Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. to be administered to animals directly or as additives to be incorporated into a basal diet so as to improve the bo weight gain, survival rate and feed conversion rate of an animal; and another embodiment of the present invention provides a medicinal agent improving an egg production rate, egg weight, egg quality or eggshell strength of animals. Since Rosa roxburghii, Artemisiae argyi folium an Brassica oleracea var. capitata L. are used, a high degree of safety i afforded and no environmental pollution is caused. Further. Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat are available at low costs and are excellent as a medicinal agent or animal feedstuff for accelerating growth of an animal and a medicinal agent for improving an egg production rate, egg weight, egg quality or eggshell strength of an animal and have a high storageability.

The invention being thus described, it will be obvious that the same m be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intend to be included within the scope of the following claims.

CLAIMS:

What we claim is:

1. A method of reducing the symptoms of diarrhea in an animal which comprises administering a pharmacologically effective amount of a mixt of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the animal.

2. The method of claim 1, wherein the animal is a mammal.

3. The method of claim 2, wherein the mammal is a human being.

4. The method of reducing the symptoms of diarrhea according to claim wherein the mixture is an extract thereof.

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L20: Entry 3 of 3 File: USPT Sep 17, 1996

US-PAT-NO: 5556624
DOCUMENT-IDENTIFIER: US 5556624 A

TITLE: Method of immunopotentiating and protecting an animal from E. c infections using a combination of Rosa roxburghii, Artemisiae argyi fo and Brassica oleracea var. capitata L.

DATE-ISSUED: September 17, 1996

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APPL-NO: 8/ 333079
DATE FILED: November 1, 1994

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FIELD-OF-SEARCH: 514/867, 424/195.1, 424/93.7

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	3108040	October 1963	Folkers	167/55

OTHER PUBLICATIONS

Yoshida, T. et al, "Chem. Pharm. Bull." vol. 35, #5, pp. 1817-1822 (19
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ART-UNIT: 188

PRIMARY-EXAMINER: Wityshyn; Michael G.

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ATTY-AGENT-FIRM: Flynn, Thiel, Boutell & Tanis, P.C.

ABSTRACT:

A method for immunopotentiating and protecting an animal from an infec caused by E. coli is described. The method comprises administering a composition containing Rosa roxburghii, Artemisiae argyi folium, and Brassica oleracea var. capitata L. to the animal.

5 Claims, 0 Drawing figures
Exemplary Claim Number: 1

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a medicinal agent or food which potentiates the immune system of an animal, including a human being, t thereby protect the animal from infection, and a feed or feedstuff hav an immunopotentiating activity.

The present invention also relates to a medicinal agent or food for regulating a function of the digestive tract or gastrointestine of an animal, including a human being, and a feed or feedstuff having the activity of regulating the function of the digestive tract or gastrointestine of an animal.

Further, the present invention relates to a medicinal agent for improv antibiotic absorption by an animal, including a human being, and a fee feedstuff for improving antibiotic absorption by an animal.

Furthermore, the present invention relates to a medicinal agent for accelerating an animal growth or for improving an egg production rate, weight, egg quality or eggshell strength of an animal and a feed or feedstuff having the activity of accelerating an animal growth or the activity of improving an egg production rate, egg weight, egg quality eggshell strength of an animal.

2. Description of the Related Art

With the recent progress in immunology, it has come to be thought that various maladies and infectious diseases of an animal, including a hum being, are caused by a weakening or deficiency in the immune system of animal.

For example, a human being frequently suffers from a weakening or deficiency in his immune system because of bronchial asthma, allergic diseases, articular rheumatism, autoimmune diseases, nutritional disorders, surgical operation, aging, cancer, organ transplantation, pregnancy or the like, resulting in the complication of an infectious disease such as respiratory infections, sepsis or urinary infections.

Up to this time, various antibiotics have been administered to patient with such maladies or infectious diseases. Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandr and aquaculture in order to raise livestock, poultries or fish efficiently, and in such raising, it has been also a practice to administer a high dose of an antibiotic.

The repeated administration of an antibiotic for a long period causes generation of antibiotic-resistant bacteria to lower the effect of the antibiotic. Further, hospital infection has also become a significant problem. Under these circumstances, it has been expected to develop a preventive and therapeutic agent which can potentiate the immune syste while reducing the dosage of an antibiotic.

Further, the overcrowded raising employed in the fields of animal husbandry and aquaculture has a problem in that various infectious diseases frequently break out because of stress or juvenile immuno-deficiency. Furthermore, when a high dose of an antibiotic is administered as a countermeasure against the problem, there occur othe problems that the antibiotic is not completely consumed and that antibiotic-resistant bacteria propagate in the environment.

Recently, animals, including human beings, have frequently suffered fr various gastrointestinal diseases which are caused by a lowering or deficiency in the immune system, stress, dyspepsia or the like, and mo of which are accompanied with diarrhea.

For example, a human being becomes susceptible to an infectious diseas the digestive tract as his resistance lowers, and representative examp of the infectious disease include bacterial, vital and parasitic diarrheas. Further, the above gastro-intestinal diseases also include acute diarrheas caused by food poisoning and food allergy and chronic diarrheas caused by a disorder of digestion and absorption, excess gut hormone and colic diseases.

It has been the practice to administer an intestinal depressomotor for intestines, an astringent, an irritant-absorbing agent, a torpent for enteric mucous membranes or various antibiotics against these gastrointestinal diseases.

Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandry and aquaculture to raise livestock, poultri or fish efficiently. In such raising, it has been a practice to admini the above therapeutic agents for the treatment of diarrhea caused by stress or dyspepsia. Particularly, a large amount of an antibiotic has been used for the prevention of infectious diseases.

The administration of the above depressomotor or astringent is essenti a nosotropic means, while that of an antibiotic is an etiotropic one. However, the repeated administration of an antibiotic for the preventi of infectious diseases has a problem that the preventive effect lowers owing to the generation of antibiotic-resistant bacteria.

Under these circumstances, it has been expected to develop a novel preventive and therapeutic agent which can regulate gastrointestinal functions themselves and is safe.

Up to this time, various antibiotics have been administered to patient with various maladies or infectious diseases. Meanwhile, large-scale o overcrowded raising has been employed in the fields of animal husbandr and aquaculture to raise livestock, poultries or fish efficiently. In raising, it has been a practice to administer a high dose of an antibiotic.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic accumulates in the body of an an to affect the body and that the administration of a more potent antibi becomes necessary because of the generation of antibiotic-resistant bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. Under these circumstances, i has been expected that the dose of the antibiotic to be administered i reduced. In order to reduce the dose of the antibiotic, it has been believed effective that the absorption of the antibiotic through the digestive tract should be enhanced to attain an effect equal or superi to that attained by the administration thereof in a high dose, even wh the antibiotic is administered in a low dose. However, no substance wh can improve the absorption of an antibiotic has been found as yet.

In preparing animal feed, various attempts have been widely made at improving the feeding efficiency for animals and also at accelerating growth thereof by adding various antibiotics to the feed, incorporatin increased amount of proteins into the feed, changing the feeding metho improving the dosage form of the feed.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic remains or accumulates in the bo of an animal to affect the body and that the administration of a more potent antibiotic becomes necessary because of the generation of resis bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. In addition, the effects

obtained by varying the feeding method and the dosage form of the feed limited. Under these circumstances, it is necessary to develop a safe less problematic animal growth accelerator, feed and improver for the production ratio, egg weight, egg quality or eggshell strength of anim

DISCLOSURE OF THE INVENTION

Summary of the Invention

In view of the above problems, the present inventors have extensively studied for many years and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are useful for overcoming the problems. The present invention has been accomplished o the basis of this finding.

Thus, the present invention provides;

(1) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(2) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat L.;

(3) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L.;

(4) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. and a basal diet;

(5) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to an animal; and

(6) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a basal diet to an animal.

In view of the above problems with respect to the use of antibiotics, present inventors have extensively studied for many years on protectiv agents which are safe for animals and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. have an immunopotentiating activity. The present invention has been accomplish on the basis of this finding.

Thus, the present invention provides;

(7) a method for immunopotentiating and protecting from infectious diseases, which comprises administering a pharmacologically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

to an animal;

(8) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for immunopotentiating and protecting from infectious diseases;

(9) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for immunopotentiating and protecting from infectious diseases in an animal;

(10) a pharmaceutical composition for immunopotentiating and protectin from infectious diseases in an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(11) a medicinal agent for immunopotentiating and protecting from infectious diseases of an animal, comprising a substance selected from group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. and a pharmaceutically acceptable carrier; a

(12) a feedstuff for an animal, which is useful for immunopotentiating protecting from infectious diseases in an animal, comprising a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L.

In view of the above problem, the present inventors have extensively studied for many years regulating agents for the digestive tract which safe for human beings and animals, and have found that Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. have th activity of regulating gastrointestinal functions. The present inventi has been accomplished on the basis of this finding.

Thus, the present invention provides;

(13) a method for regulating the digestive tract, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to an animal;

(14) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for regulating the digestive tr

(15) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for regulating the digestive tract of an animal;

(16) a pharmaceutical composition for regulating the digestive tract o animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(17) a medicinal agent for regulating the digestive tract of an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(18) a feedstuff for an animal, which is useful for regulating the digestive tract of the animal, comprising a substance selected from th group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L.

To provide an absorbefacient which enables a reduction in the dose of antibiotic when administered together with the antibiotic, the present inventors have extensively studied to find out that the absorption of antibiotic can surprisingly be improved when Rosa roxburghii alone or or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are administered simultaneously with the antibiotic or before or after the administrati of the antibiotic.

Thus, the present invention provides;

(19) a method for improving antibiotic absorption, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to an animal;

(20) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for improving its antibiotic absorption;

(21) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving antibiotic absorption in an animal;

(22) a pharmaceutical composition for improving antibiotic absorption an animal, comprising a pharmaceutically effective amount of a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(23) a medicinal agent for improving antibiotic absorption in an anima comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(24) a feedstuff for an animal, which is useful for improving antibiot absorption in the animal, comprising a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.

To provide a feedstuff free from the abovementioned defects of an ordi feedstuff and a method of administering the feedstuff to animals, the present inventors have extensively studied. As a result, they have fou that the growth of animals, including fetuses, is surprisingly acceler by administering Rosa roxburghii alone or two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica olera

var. capitata L. to them. The inventors have further found that an improvement in the egg production rate, egg weight, egg quality or eggshell strength of birds and fishes is also accelerated by them.

Thus, the present invention provides;

(25) a method for accelerating growth of an animal, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to the animal;

(26) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for accelerating growth of the animal;

(27) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for accelerating growth of an animal;

(28) a pharmaceutical composition for accelerating the growth of an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(29) a medicinal agent for accelerating the growth of an animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(30) a feedstuff for an animal, which is useful for accelerating the growth of the animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.;

(31) a method for improving an egg production rate, egg weight, egg quality or eggshell strength of an animal, which comprises administeri pharmacologically effective amount of a substance selected from the gr consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the animal;

(32) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine of an animal for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal;

(33) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving an egg production rate, egg weight, egg quality or eggsh strength of an animal;

(34) a pharmaceutical composition for improving an egg production rate egg weight, egg quality or eggshell strength of an animal, comprising pharmaceutically effective amount of a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(35) a medicinal agent for improving an egg production rate, egg weigh egg quality or eggshell strength of an animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier; and

(36) a feedstuff for an animal, which is useful for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal, comprising a substance selected from the group consisting of R roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

Further scope and applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific exampl while indicating preferred embodiments of the invention, are given by of illustration only, since various changes and modifications within t spirit and scope of the invention will become apparent to those skille the art from this detailed description.

DETAILED DESCRIPTION OF THE INVENTION

Rosa roxburghii is a perennial shrub of the family Rosaceae and is nat to Guizhou in China and its fruit has been noticed as the material of juice, jam or liquor. The fruit of Ross roxburghii has been known to h a pharmacological activity and is useful as an antiulcer agent by virt of its cancer-preventing, cholesterol level-lowering and antistress activities.

Artemisiae argyi folium is a plant of the family Compositae and has be known to be useful as an antidiarrheal or antiabdominalgia agent, a hemostatic or the like. Further, this plant has been known to exhibit low antimicrobial activity only against Gram-positive bacteria. Artemi argyi folium includes, for example, Artemisia princeps Pampanini, Artemisia mongolia Fischer, Artemisia argyi LEVL. et VANT., and Artemi lavandulaefolia DC.

Brassica oleracea var. capitata L. is a plant of the family Cruciferae has been used as food.

The Rosa roxburghii to be used in the present invention is not particularly limited in form, but may have any form so far as it conta the essences of Rosa roxburghii. Generally, the fruit of Rosa roxburgh may be used in its raw state or as a dry powder prepared by convention means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

The Artemisiae argyi folium and Brassica oleracea var. capitata L. to used in the present invention are not particularly limited in form, bu may have any form so far as it contains the essences thereof. Generall the leaf of Artemisiae argyi folium or Brassica oleracea var. capitata may be used in a raw state or as a dry powder prepared by conventional means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

An extract from the above leaves can be prepared by, e.g., a process w

comprises immersing 1 part by weight of the raw material in 5 parts by weight of water, boiling the obtained mixture under heating for 30 min to conduct extraction, filtering the resulting system, and concentrati the obtained filtrate to 3.6 parts by weight. The obtained extract may powdered by spray drying, freeze drying, vacuum drying (vacuum concentration) of the like.

When an organic solvent is used for extraction, methanol, ethanol, n-propanol, n-butanol, acetone, ethyl acetate, ether, methylene chlori chloroform, benzene, carbon tetrachloride and petroleum ether are preferable. These organic solvents may be used alone or as a mixture o two or more of them.

The extracts thus produced may be used as such or may be concentrated, diluted or freed from the solvent prior to use.

The extract of Rosa roxburghii to be used in the present invention may one commercially available under the trade name of "Rosa roxburghii extract powder MF", which is a product of Maruzen Seiyaku K.K. compris 30% of an extract of Rosa roxburghii and 70% of dextrin.

In the present invention, at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. is(are) used.

When Rosa roxburghii and Artemisiae argyi folium are used in the prese invention, the ratio between them is not particularly limited. General Artemisiae argyi folium is used, in terms of raw leaf, that is, when i prescribed as the weight of raw leaf, in an amount of 0.25 to 400 part weight, preferably 0.5 to 200 parts by weight, still preferably 1 to 1 parts by weight, based on 1 part by weight of the extract of Rosa roxburghii.

When both Artemisiae argyi folium and Brassica oleracea var. capitata are used together with Rosa roxburghii, the amounts thereof are not particularly limited. Generally, Artemisiae argyi folium and Brassica oleracea var. capitata L. are used in amounts of 0.25 to 400 parts by weight and 0.5 to 800 parts by weight, respectively, in terms of their respective raw leaf, based on 1 part by weight of the extract of Rosa roxburghii. It is preferable that Artemisiae argyi folium and Brassica oleracea var. capitata L. be used in amounts of 0.5 to 200 parts by we and 1 to 400 parts by weight respectively, still preferably in amounts 1 to 100 parts by weight and 5 to 200 parts by weight respectively.

The pharmaceutical composition or the medicinal agent of the present invention may be administered, with the purpose of the prevention of diseases, as a food having a regulating effect on a living body, i.e., so-called functional food, which can be prepared by adding this composition or agent to food.

When the pharmaceutical composition or the medicinal agent of the pres invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used as a medicine or so-called health food, it may be in the form tablet, granule, powder, capsule or syrup. The pharmaceutical composit or the medicinal agent is prepared by mixing the members with a conventional filler or carrier, binder, lubricant or the like and trea the obtained mixture in the conventional manner.

When the pharmaceutical composition or the medicinal agent of the pres invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used for an animal, such as a mammal, a bird and a fish, especially a livestock, the dosage form thereof is not particularly limited. For example, it may be administered to livestock in a state mixed with a b diet (or feed or feedstuff). That is, this composition or agent may be mixed with a basal diet (or feed or feedstuff) just before using or ma premixed with a basal diet (or feed or feedstuff). In other words, the feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be administered an animal as a feed having a biophylactic and regulating function.

The arbitrary basal diet for animals, which is used for preparing the stuff according to the present invention, is not particularly limited. Examples of the raw materials constituting the basal diet include grai such as corn, milo and wheat flour, brans such as defatted rice bran a wheat bran, animal substances such as fish meal and skimmilk. vegetabl oil cake such as soybean oil cake, and additives such as calcium carbonate, calcium phosphate, common salt, vitamin B.sub.2, DL-methion choline chloride, manganese sulfate, dry iron sulfate, calcium iodate, copper sulfate, dry zinc sulfate and sodium saccharin. The basal diet be prepared by blending some members selected from among these materia The formulation of the basal diet varies depending upon the animal to which the diet is administered.

The improved feed of the present invention, i.e., the feedstuff contai at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. can be administered to various livestock, poultries, pets and fish. The livestock includes pig, cattle, horse, g sheep and rabbit; the poultry chicken, Japanese quail, turkey and duck the pets dog and cat; and the fish yellowtail, sea bream, flatfish, globefish, hardtail, amberjack, salmon, carp, eel, sweetfish, trout, c and lobster.

Needless to say, the pharmaceutical composition, the medicinal agent a the feedstuff of the present invention are non-toxic.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for immunopotentiating and protecting from infectious diseases.

In this case, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be used alone or as a combination of two more of them. In other words, the combination of Rosa roxburghii with Artemisiae argyi folium, that of Rosa roxburghii with Brassica olexace var. capitata L., that of Artemisiae argyi folium with Brassica olerac var. capitata L., and that of Rosa roxburghii with Artemisiae argyi fo and Brassica oleracea var. capitata L. can be used.

Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. exhibit an immunopotentiating and protective activity even when used each alone. However, the use of a combination of two or more them surprisingly exhibits an immunopotentiating and protective activi which is higher than that of the use of each of them.

The pharmaceutical composition or the medicinal agent of the present invention can safely and effectively potentiate the immune function of livestock such as cattle, pig or horse, a poultry such as chicken or Japanese quail, fish such as young yellowtail, sea bream, eel, trout, or goldfish, a pet such as dog or cat, or a human being to protect the animal or the like from various infectious diseases, which is one of m objects of the present invention.

The term "immunopotentiation" used in this specification means "potentiation of the immune function of an animal such as a human bein mammal, fish or the like".

The pharmaceutical composition or the medicinal agent of the present invention have the effect of enhancing the immune function of an anima including a human being, and serves as a preventive and therapeutic pharmaceutical composition or agent for various maladies and infectiou diseases by virtue of this effect, so that the diseases against which composition or agent is efficacious are not particularly limited. For example, it is efficacious against, e.g., articular rheumatism, autoim diseases, bronchial asthma, nutritional disorders, surgical operation, diseases of old age and various infectious diseases such as respirator infection, sepsis and urinary infection with respect to a human being.

With respect to animals other than humans, this composition or agent i efficacious against scours, epizootic pneumonia, atrophic rhinitis and infectious enterogastritis of a pig, pneumonia and Marek's disease of chicken, scours, pneumonia and mastitis of cattle, and AIDS and leukem of a pet.

Further, with respect to fish, the infectious disease against which th composition or agent of the present invention is efficacious is not particularly limited and includes bacterial diseases such as streptococcosis and nodosity, and viral diseases.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 25 mg or above, preferably 50 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for regulating the digestive tract.

In this case, Rosa roxburghii is preferably used as the essential component. The activity of regulating the digestive tract, i.e., the gastrointestinal activity, of the pharmaceutical composition or the medicinal agent is synergistically enhanced when the composition or ag further contains Artemisiae argyi folium or Artemisiae argyi folium an Brassica oleracea var. capitata L. The pharmaceutical composition or t medicinal agent is also used as a component of a feedsuff, and the feedstuff containing the pharmaceutical composition or the medicinal a also exhibit the above-described gastrointestinal function regulating activity.

The pharmaceutical composition or the medicinal agent of the present invention can efficaciously and safely regulate the function(s) of the digestive tract of livestock such as cattle, pig or horse, poultry suc chicken or Japanese quail, fish such as young yellowtail, sea bream, e trout, carp or goldfish, a pet such as a dog or cat, or humans, which one of the main objects of the present invention.

The term "digestive tract" to be used in this specification refers to organs ranging from the mouth to the anus, particularly to the stomach duodenum, small intestine, large intestine and rectum.

The term "function(s) of the digestive tract" or "gastrointestinal function(s)" used in this specification means digestion, absorption an digestive motion such as peristalsis. The pharmaceutical composition o the medicinal agent for the digestive tract according to the present invention is useful as a therapeutic and preventive pharmaceutical composition or agent for diarrhea when it acts on the lower part of th digestive tract, such as the large intestine or rectum, while it is efficacious in alleviating a sharp pain and in moderating gastic empty and borborygmus when it acts on the upper part thereof, such as the stomach or duodenum.

When the pharmaceutical composition or the medicinal agent for regulat the function(s) of the digestive tract is used as a therapeutic and preventive pharmaceutical composition or agent for diarrhea, it is efficacious against various diarrheas which are not limited in cause a examples of the diarrhea include bacterial diarrhea such as salmonello viral diarrhea such as caused by adenovirus, parasitic diarrhea such a amebic dysentery, toxic diarrhea such as food and drug poisoning, alle diarrhea caused by, e.g., food allergy, functional diarrheas such as c diarrhea and neurotic diarrhea, diarrheas caused by the use of an antibiotic (such as one caused by microbial substitution and staphylococcal diarrhea), and chronic diarrheas caused by the disorder digestion and absorption, excess gut hormone and colic diseases.

With respect to chickens and pigs, the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is efficacio against bacterial diarrhea such as caused by Escherichia coli or swine dysentery, vital diarrhea caused by TGE or rotavirus, or simple diarrh such as one caused by stress or dietetic diarrhea. Further, it is efficacious also against various diarrheas of fish.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 20 mg or above, preferably 40 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will be described about the case that the pharmaceutical compositio the medicinal agent or the feedstuff of the present invention is used improving antibiotic absorption.

In this case, the pharmaceutical composition or the medicinal agent comprising Rosa roxburghii or a combination of two or more members

selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered simultaneously with an antibiotic or before or after the administration of an antibiotic. As pharmaceutical composition or the medicinal agent, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be administered by itself in a raw, dried or pulverized state, or a formulation may be administered. Alternatively, the pharmaceutical composition or the medicinal agent may be added to food or feed in a conventional manner. Namely, the feedstuff comprising a basal diet and least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the basal diet described above. The amount of Rosa roxburghii, or the combination, is preferably 0.001% by weight or abov still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff f improving antibiotic absorption according to the present invention may administered simultaneously with an antibiotic or, before or after the administration of an antibiotic. In any case, the effect of improving absorption of an antibiotic can be attained.

In this case, the dose of Rosa roxburghii or a combination of two or m members selected from among Rosa roxburghii Artemisiae argyi folium an Brassica oleracea var. capitata L. is not particularly limited but var depending upon the dosage form, the subject animal or the dose of the antibiotic.

For example, when the pharmaceutical composition or the medicinal agen for improving antibiotic absorption comprising two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered to livestock such as a pig a powdered extract, the powdered extract is administered in an amount of part by weight or above, preferably 1 part by weight or above, still preferably 3 parts by weight or above based on 1 part by weight of the antibiotic administered. When Rosa roxburghii is administered alone, t amount thereof may be the same as that described above.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for accelerating growth of an animal or improving an egg production rate, weight, egg quality or eggshell strength.

One of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstuff for accelerat growth of an animal, a novel pharmaceutical composition, medicinal age or feedstuff for improving the egg production rate, egg weight, egg quality or eggshell strength of animals, and a method for administerin them to animals.

More specifically, one of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstu which can accelerate an increase in the body weight and can improve th

survival rate, feed conversion ratio of animals, and a novel pharmaceutical composition, medicinal agent or feedstuff which can imp the survival rate, egg production rate, egg weight, egg quality, eggsh strength and feed conversion ratio of animals.

The term "growth acceleration" or "accelerating growth of an animal" a used herein includes also growth improvement and growth acceleration o fetuses. The expression "improvement in the egg production ratio, egg weight, egg quality and eggshell strength" means an improvement in the production ratio, an increase in the egg weight, and improvements in t eggshell and egg quality.

In this case, Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., preferably a combination of three members described above, as the active ingredient is administered to animals. Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. can be administered directly to animals or they can b incorporated in the feedstuff or feed by an ordinary method. Namely, t feedstuff comprising a basal diet and at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. to the basal diet described above. The amount of Rosa roxburghii or the combination is preferably 0.001% by weight or above, still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff accelerates the growth of animals, and improves the rate of raising or feed conversion rate. When it is administered to birds and fishes, it accelerates an improvement in the egg production rate, egg weight, egg quality or eggshell strength of them.

The dose of Rosa roxburghii is not particularly limited in this case, since it varies depending on the dosage form thereof and the subject animal.

When Rosa roxburghii extract is administered to livestock, such as cat and pigs, the amount thereof is usually at least 10 mg, preferably at least 50 mg and still preferably at least 100 mg, based on 1 kilogram the body weight thereof.

DETAILED DESCRIPTION:

EXAMPLES

The present invention will now be described in more detail with refere to the following Examples which should not be considered to limit the scope of the present invention.

In the Examples, the description of the dose of each component, e.g., mg/kg p.o." means oral administration in a dose of 10 mg per kilogram

body weight. Further, the symbols "*" and "**" used in the column of t x.sup.2 test in Tables mean p<0.05 and p<0.01, respectively.

The Rosa roxburghii used in Examples A-1, B-1 and B-2 is one commercia available under the trade name of "Rosa roxburghii extract powder MF", which is a product of Maruzen Seiyaku K K comprising 30% of an extract Rosa roxburghii and 70% dextrin. The dose of Rosa roxburghii is expres in terms of the weight of this extract powder. The dose of Actemisiae argyi folium is expressed in terms of the weight of an extract thereof having 4-fold concentration with respect to its normal weight, while t dose of Brassica oleracea var. capitata L. is expressed in terms of th weight of an extract having a 9-fold concentration with respect to its normal weight.

Example A-1

As shown in Tables A-1 and A-2, Rosa roxburhii, Artemisiae argyi foliu and Brassica oleracea var. capitata L. were each orally administered a (Table A-1), or as a mixture of two or more of them (Table A-2), to te SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 to 33 g) in doses of to 2000 mg/kg, while physiological saline was orally administered ther as a control. After 24 hours, clinically available Escherichia coli (5.0.times.10.sup.7 CFU/mouse, 0.2 ml) was intravenously inoculated in each mouse to determine the survival rate based on the number of viabl mice after 7 days from the infection. The results are given in Tables and A-2.

TABLE A-1 x.sup.2 Sample Surviv rate (%) test control (physiological saline p.o.) 0 Artemisiae argyi folium 500 mg/Kg p.o. 2 Artemisiae argyi folium 1000 mg/Kg p.o. 30 Artemisiae argyi folium 200 mg/Kg p.o. 50 * Brassica oleracea var. capitata L. 10 500 mg/Kg p.o. Brassica oleracea var. capitata L. 30 1000 mg/Kg p.o. Brassica olerace var. capitata L. 40 * 2000 mg/Kg p.p. Rosa roxburghii 500 mg/Kg p.o. 2 Rosa roxburghii 1000 mg/Kg p.o. 30 Rosa roxburghii 2000 mg/Kg p.o. 50

TABLE A-2 Survival x.sup.2 Samp rate (%) test control (physiological saline p.o.) 0 Artemisiae argyi folium 500 mg/Kg p.o. a 40 * Brassica oleracea var. capitata L. 500 mg/Kg p.o. Artemisiae argy folium 1000 mg/Kg p.o. and 70 * Brassica oleracea var. capitata L. 100 mg/Kg p.o. Artemisiae argyi folium 2000 mg/Kg p.o. and 100 ** Brassica oleracea var. capitata L. 2000 mg/Kg p.o. Rosa roxburghii 500 mg/Kg p. and 60 * Artemisiae argyi folium 500 mg/Kg p.o. Rosa roxburghii 1000 m p.o. and 90 ** Artemisiae argyi folium 1000 mg/Kg p.o. Rosa roxburghii 2000 mg/Kg p.o. and 100 ** Artemisiae argyi folium 2000 mg/Kg p.o. Ros roxburghii 500 mg/Kg p.o., 70 * Artemisiae argyi folium 500 mg/Kg p.o. Brassica oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxburghii 1000 mg/Kg p.o., 100 ** Artemisiae argyi folium 1000 mg/Kg p.o. and Brassic oleracea var. capitata L. 1000 mg/Kg p.o.

As shown in Table A-1, the survival rate increases depending upon the of Rosa roxburghii, Artemisiae argyi folium or Brassica oleracea var. capitata L., which reveals that these plants have a protective effect.

As shown in Table A-2, the simultaneous use of Rosa roxburghii with Artemisiae argyi folium, that of Artemisiae argyi folium with Brassica oleracea var. capitata L. and that of Rosa roxburghii with Artemisiae argyi folium and Brassica oleracea var. capitata L. exhibit the protec effect exceeding the arithmetic sum of the respective effects of these plants. That is, the above simultaneous use exhibits a significant synergistic effect, being of great value.

The above test in Example A-1 reveals that the medicinal agent for immunopotentiating and protecting from infectious diseases of the pres invention has an excellent protective activity against Gram-negative bacteria, which suggests that the agent of the present invention is no one which exhibits a low antimicrobial activity only against Gram-posi bacteria like Escherichia coli, but one which potentiates the immune function itself. Accordingly, the agent of the present invention is effective in the prevention and treatment of various maladies and usef as a preventive and therapeutic agent for various infectious diseases as a functional food or feed. Thus, the present invention is of great value.

Example B-1

As shown in Table B-1, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were each orally administered to si SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) in a dose of 125 500 mg/kg, while physiological saline was orally administered thereto control. After 30 minutes, 1 ml of caster oil was further orally administered to the rats to determine the time which elapsed until the occurrence of diarrhea and the total amount of excrement given within hours of the.administration. The antidiarrheal index of each case was calculated from these values according to the following formula 1 to evaluate the antidiarrheal activity. The measured values and the antidiarrheal index are given in Table B-1. ##EQU1##

TABLE B-1 _____ Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index _____ control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Artemisiae argyi 53.3 .+ 13.8 4.5 .+-. 0.83 2.06 folium 125 mg/Kg p.o. Artemisiae argyi 71.8 .+ 18.4 3.7 .+-. 1.09 3.38 folium 250 mg/Kg p.o. Artemisiae argyi 95.8 .+ 12.8 2.0 .+-. 0.68 8.33 folium 500 mg/Kg p.o. Brassica oleracea var. 4 .+-. 7.9 5.9 .+-. 1.16 1.36 capitata L. 125 mg/Kg p.o. Brassica olerac var. 49.5 .+-. 10.7 4.7 .+-. 1.14 1.83 capitata L. 250 mg/Kg p.o. Bras oleracea var. 51.2 .+-. 8.2 3.8 .+-. 1.21 2.34 capitata L. 500 mg/Kg p Rosa roxburghii 50.5 .+-. 10.0 4.2 .+-. 1.67 2.09 125 mg/Kg p.o. Rosa roxburghii 68.3 .+-. 6.4 3.7 .+-. 0.80 3.21 250 mg/Kg p.o. Rosa roxbur 77.8 .+-. 14.4 1.8 .+-. 0.70 7.52 500 mg/Kg p.o.

_____

It was ascertained from the results given in

Table B-1 that Artemisiae argyi folium, Rosa roxburghii and Brassica oleracea var. capitata L. had an antidiarrheal activity.

Example B-2

As shown in Tables B-2 and B-3, two or more members selected from amon

Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were orally administered to six SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) each in doses of 125 to 500 mg/kg, while physiological saline was orally administered thereto as a control. Aft 30 minutes, 1 ml of castor oil was further administered orally to the to determine the time elapsed until the occurrence of diarrhea and the total amount of the excrement given within 2 hours of the administrati The antidiarrheal index of each case was calculated from these values according to the above formula 1 to evaluate the antidiarrheal activit The measured values and the antidiarrheal index are given in Tables B- and B-3.

TABLE B-2 _____ Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index _____ control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Artemisiae argyi folium 62.7 .+-. 13.4 4.2 .+-. 1.02 2.60 mg/Kg p.o. and Brassica oleracea var capitata L. 125 mg/Kg p.o. Artemisiae argyi folium 250 83.5 .+-. 15.3 .+-. 1.45 4.54 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 m p.o. Artemisiae argyi folium 500 99.3 .+-. 13.2 1.8 .+-. 0.70 9.59 mg/ p.o. and Brassica oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxbur 78.4 .+-. 8.6 3.5 .+-. 1.73 3.89 125 mg/Kg p.o. and Artemisiae argyi folium 125 mg/Kg p.o. Rosa roxburghii 90.3 .+-. 12.4 2.6 .+-. 1.17 6.0 250 mg/Kg p.o. and Artemisiae argyi folium 250 mg/Kg p.o. Rosa roxburg 500 mg/Kg p.o. and 101.8 .+-. 14.3 1.6 .+-. 1.58 11.06 Artemisiae argy folium 500 mg/Kg p.o. _____

TABLE B-3 _____ Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index _____ control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Rosa roxburghii 125 91.5 .+-. 17.4 3.5 .+-. 1.73 6.37 mg/Kg p.o., Artemisiae argyi folium 125 m p.o. and Brassica oleracea var. capitata L. 125 mg/Kg p.o. Rosa roxbur 250 102.0 .+-. 13.0 1.8 .+-. 0.70 9.85 mg/Kg p.o., Artemisiae argyi fo 250 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 mg/Kg p.o. R roxburghii 500 mg/Kg p.o., Artemisiae argyi folium 500 mg/Kg 110.8 .+- 14.0 1.3 .+-. 1.16 14.82 p.o. and Brassica oleracea var. capitata L. 5 mg/Kg p.o. _____

It has been ascertained from the results given in Tables B-1 and B-2 t the simultaneous use of Rosa roxburghii with Artemisiae argyi folium exhibits a synergistic antidiarrheal activity, while it has been ascertained from the results given in Tables B-1 and B-3 that the simultaneous use of Rosa roxburghii with Artemisiae argyi folium and Brassica oleracea var. capitata L. also exhibits a synergistic antidiarrheal activity.

The above test in Examples B-1 and B-2 reveals that the medicinal agen for regulating a function of a digestive tract according to the presen invention has an excellent antidiarrheal activity. Accordingly, the medicinal agent for regulating a function of a digestive tract of the present invention is effective in the prevention and treatment of diar caused by various diseases, and is useful as a preventive or therapeut agent for diarrhea or a functional food or feed. Thus, the present invention is of great value.

The mixture of Rosa roxburghii, Artemisiae argyi folium and Brassica

oleracea var. capitata L. used in the following Examples C-1, C-2, D-1 D-6 were prepared as follows:

Raw leaves (3 kg) of Artemisiae argyi folium were immersed in 15 l of water and the obtained mixture was boiled for 30 minutes to conduct extraction. The resulting mixture was filtered to recover a filtrate. filtrate was concentrated to 1.8 kg by heating to give an extract. Thi extract was powdered by spray drying to give a dry powder of the extra of Artemisiae argyi folium. Similarly, Brassica oleracea var. capitata was also converted into a dry powder of the extract thereof. 1500 g of Rosa roxburghii extract powder MF (a product of Maruzen Seiyaku K.K. comprising 30% of an extract of Rosa roxburghii and 70% of dextrin) wa mixed with 675 g of the above dry powder of the extract of Artemisiae argyi folium and 225 g of the above dry powder of the extract of Brass oleracea var. capitata L. to give 2400 g of a mixed powder (a weight r of Rosa roxburghii:Artemisiae argyi folium:Brassica oleracea var. capi L. being 2:3:1).

Example C-1

The above mixture of the dry powders or each of the dry powders was or administered to four SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 33 g) in a dose given in Table C-1 together with 10 mg per kilogram of body weight of amoxicillin (hereinafter referred to simply as "AMPC") an antibiotic. After 2 hours, blood was gathered from the mice to determine the serum AMPC concentrations, which were compared with thos mice to which AMPC alone had been administered. Each serum AMPC concentration was determined by using a strain of Sarcina luteas (Gram-positive and AMPC-sensitive bacterium) according to the disk met (this method of measurement was also employed in Example C-2).

The results are given in Table C-1.

TABLE C-1

	Serum AMPC concn. .mu.g/ml (figures in parentheses being ratio thereof to the concn. of control)
AMPC 10 mg/kg (control	2.12 .+-. 1.14 (1.00)
AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.	2.70 .+-. 1.22 (1.27)
10 mg/kg AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.	3.04 .+-. 1.22 (1.43)
30 mg/kg AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.	3.11 .+-. 1.97 (1.47)
90 mg/kg AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.	3.53 .+-. 1.93 (1.67)*
190 mg/kg AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.	5.62 .+-. 0.57 (2.65)**
2000 mg/kg AMPC 10 mg/kg + Rosa roxburghii 10 mg/kg AMPC 10 mg/kg + Artemisiae folium 10 mg/kg AMPC 10 mg/kg +Brassica oleracea var. capitata L. 10 mg/kg	4.87 .+-. 1.81 (2.30) 2.95 .+-. 1.13 (1.39) 2.20 .+-. 1.11 (1.04)

As shown in Table C-1, the group of the mice to which AMPC and Rosa roxburghii had been administered and the groups of the mice to which A Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. had been administered were apparently improved in the absorption of AMPC depending upon the dose thereof as compared with th group of the mice to which AMPC alone and been administered.

Example C-2

AMPC (10 mg/kg) alone or the mixture of AMPC (10 mg/kg) with the mixed powder (30 mg/kg) comprising Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered to six SPF male pi (age: 1 month, weight: about 15 kg) mixed with a basal diet to gather blood from the pigs after 0.5, 1, 2, 3 and 6 hours. The serum AMPC concentrations of the pigs to which AMPC and the mixed dry powder had administered were determined and compared with those of the pigs to wh AMPC alone had been administered.

The results are given in Table C-2.

The formulation of the above basal diet are given in Table C-3.

TABLE C-2

after 0.5 hr	after 1 hr	after 2 hrs	after 3 hrs	after 6 hrs
AMPC 10 mg/kg (control)	3.07 .+-. 1.55	6.03 .+-. 0.80	3.71 .+-. 0.63	2 .+-. 0.40
0.85 .+-. 0.75				
AMPC 10 mg/kg + a mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 30 mg/kg	6.03 .+-. 1 7.81 .+-. 1.49 (1.63)**	5.85 .+-. 0.80 (1.30)*	3.71 .+-. 1.41 (1.58)**	1.74 .+-. 1.16 (1.77)* (2.05)*

note) Serum AMPC concentration, .mu.g/ml The figures in parentheses ar the ratios of the serum AMPC concentration to that of the control.

TABLE C-3

Component	Amt. (%)	Initiation of feeding to 5 Administration	Amt. (%)	5 to 7 weeks of age period	weeks of age
par wheat	33.8	20.0	glucose	9.0	5.0
sugar	3.0	--	wheat flour	--	20.0
yello corn	--	23.6	skimmilk powder	40.0	10.0
fish meal	3.0	5.0	soybean oil	c 3.0	9.0
Torula yeast	2.0	2.0	soybean oil	4.0	3.0
common salt	0.2	0.2	tricalcium phosphate	1.2	1.4
mineral mixture	0.2	0.2	vitamin mixture	0	0.2
flavor, antibiotic and	0.4	0.4	other feed additives		

As shown in Table C-2, the pigs to which AMPC and the mixed powder had been administered were apparently improved in the absorption of AMPC o a period of 0.5 to 6 hours after the administration as compared with t pigs to which AMPC alone had been administered.

The results of the above tests suggest that the medicinal agent for improving antibiotic absorption and the feedstuff according to the pre invention are so efficacious in improving the absorption of an antibio that the dose of the antibiotic can be reduced. Accordingly, the prese invention is of great value.

Example D-1

40 sound pigs (castrated pigs of about 10 days old; 3.0 to 3.5 kg) wer divided into four groups, i.e., three groups each consisting of ten pi to which the mixed powder comprising Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and a control group consisting of ten pigs to which an ordinary basal diet f

of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. was administered. A feedstuff enriched with the mixed powd of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. in amounts of 0.03, 0.1 or 0.3% by weight was administered the pigs of one of the three groups for 30 days. After 30 days, the in of the feedstuff and the gain of body weight were determined to calcul the rate of raising and the feed conversion ratio (feedstuff intake/ga of body weight). The results were compared with those of the control group.

The composition of the artificial milk-based basal diet for piglings w as shown in Table D-1.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th control group were compared with each other. The t-test was conducted the gain of body weight in the control group and the groups of the pre invention. Table D-2 shows the results.

TABLE D-1 Initiation of feeding 5 5 to 7 weeks Feeding period weeks of age of age Component Amt. (%) A (%) Roast wheat 33.8 20.0 Gluco 9.0 5.0 Sugar 3.0 -- Wheat flour -- 20.0 Yellow corn -- 23.6 Skim milk powder 40.0 10.0 Fish meal 3.0 5.0 Soybean oil cake 3.0 9.0 Torula yea 2.0 2.0 Soybean oil 4.0 3.0 Common salt 0.2 0.2 Tricalcium phosphate 1 1.4 Mineral mixture 0.2 0.2 Vitamin mixture 0.2 0.2 Flavor, antibiotic 0.4 and other feed additives

TABLE D-2 Feedstuff Gain of Fee intake body weight conversion (A) (B) ratio Rate of Group (kg/pig) (kg/pig) (A/B) raising Test gro 11.24 5.3 .+-. 1.33** 2.12 88.8% (0.03%) Test group 11.79 6.3 .+-. 1.6 1.87 93.0% (0.1%) Test group 12.32 5.7 .+-. 1.04* 2.16 100% (0.3%) Con 8.50 3.4 .+-. 1.15 2.50 81.9% group

The gain of body weight per pig in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the feed conversion ratio and the rate of raising were increased in the former group.

Example D-2

18 bull Holstein calves of about 7 days old were divided into three groups, i.e., two groups each consisting of six calves to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and a control group consisting of six calves to whic neither of Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L. was administered. The mixed powder of Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. was mix into a milk substitute for raising suckling calves and into a feedstuf containing a milk substitute (artificial milk) for raising suckling ca in an amount of 0.125 or 0.25% by weight based on the basal diet. The substitute or the feedstuff was repeatedly administered for 20 days. T dose of the mixed powder was 2.5 g/day or 5 g/day per calf. Each calf weighed at the beginning of the test and after the completion of the t

(after 20 days) to calculate the gain of body weight and the rate of b weight gain per day.

The composition of the feedstuff containing the milk substitute for raising suckling calves was as shown in Table D-3.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th of the control group are compared with each other. The t-test was conducted in the control group and the groups of the present invention

Table D-4 shows the results.

TABLE D-3

Component	Amt. (%)
Skim milk powder	60.0
Dry whey	
Animal fat or oil	20.0
Fish soluble	4.0
Vitamin mixture	0.5
Mineral mixture	0.7

TABLE D-4

Group	Gain of body weight (kg/calf)	Gain of weight (kg/calf/day)
Test group 2.5 g/day	41.0 .+-. 7.45**	2.0 .+-. 0.29**
Test group 5.0 g/day	42.5 .+-. 5.69**	2.13 .+-. 0.27**
Control group	25.7 .+-. 8.32	1.29 .+-. 0.36

The gain of body weight per day in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the rate o body weight gain was increased in the former group.

Example D-3

80 pullet broilers (chunky) were divided into two groups, i.e., a grou consisting of 40 broilers to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and a control group consisting of 40 broilers to which neither of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat was administered.

The mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. was administered in an amount of 0.1% by wei based on the basal diet for broilers to the group, to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered, for 6 weeks. Each broiler was weighed at the beginn of the test and after 6 weeks. The average gain of body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and that in the control gr were calculated.

The composition of the basal diet for broilers was as shown in Table D

The results of the group to which Rosa roxburghii, Artemisiae argyi fo and Brassica oleracea var. capitata L. were administered and those of control group are compared with each other. The x.sup.2 -test for the average gain of body weight was conducted in the control group and the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered.

Table D-6 shows the results.

TABLE D-5

Component	Initiation of feeding period	to 5 weeks of age Amt. (%)	5 to 6 weeks of age Amt. (%)	3 weeks of Feeding Amt. (%)
Corn	50.45	55.30	55.34	Milo 10.
15.0	15.01	Soybean oil cake	18.0	13.0
13.01	Rapeseed oil cake	--	2.5	2
Fish meal	8.0	5.0	5.01	Fish soluble 2.0
--	--	Absorbent feed	3.0	--
--	Gluten meal	Alfalfa meal	2.0	--
--	Torula yeast	1.0	--	--
Meat/bone me	--	3.0	3.0	Raw rice bran
--	2.0	2.0	Animal fat or oil	3.3
2.8	2.81	Com salt	0.25	0.25
0.25	Calcium carbonate	0.6	0.3	0.30
Dicalcium phosphate	0.5	0.5	Lysine	--
--	--	Methionine	0.18	--
--	Vitamin mixture	0.1	0.1	Choline chloride
0.05	0.06	0.06	Mineral mixture	0.1
0.1	0.1	Flavor, antibiotic and	0.17	0.09
--	other feed additives			

TABLE D-6

Group	Av. body wt. at initiation (g/broiler)	Av. body wt. after 6 weeks of feeding (g/broiler)	Av. gain body weig (g/broiler)
Test group	43.8 .+-. 0.08	2065	8.7
2021.7 .+-. 8.6**	(0.1%)		
Control group	43.6 .+-. 0.07	1879 .+-. 10	1835.4 .+-. 10.1

The increase in the average body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was larger than that in the control group.

Example D-4

12,000 young yellowtails having an average body weight of about 600 g divided into two groups, i.e., a group consisting of 6,000 young yellowtails to which Rosa roxburghii, Artemisiae argyi folium and Bras oleracea var. capitata L. were administered and a control group consis of 6,000 young yellowtails to which neither of Rosa roxburghii, Artemi argyi folium and Brassica oleracea var. capitata L. was administered. mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were mixed with a basal diet for young yellowtails (Moist pellets) in an amount of 0.5% by weight based on th basal diet and the resultant mixture was administered to them at inter of three days for one month. The results were compared with those of t control group. The young yellowtails were raised in a crawl having a s of about 3 m.times.3 m.times.3 m. During the test period, the feedstuf was administered once a day in an amount of about 3% by weight based o the body weight a day.

The composition of the basal diet for young yellowtails was as shown i Table D-7.

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and that in the control group were compared with eac other to evaluate the effect of improving the rate of raising. The x.s -test was conducted in the control group and the group of the present invention.

The results are given in Table D-8.

TABLE D-7 Component Amt. (%) Fish meal 56.0 Meat/bone meal 3 Soybean oil cake 5.0 Corn gluten meal 3.0 Torula yeast 2.0 Wheat flour 28.4 Vitamin mixture 1.0 Choline chloride 0.3 Inorg. mixture 1.0 Sodiu polyacrylate 0.3

TABLE D-8 No. of samples No. of died samples Group (fish) (fish) Test group (0.1%) 6000 180** control group 6000 750

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was far smaller than that in the control group to pr the effect of improving the rate of raising.

Example D-5

0.01, 0.03 or 0.10%, based on the amount of the mixed extract powder comprising Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L. used in a pellet for mice and rats, of a preparation prepared by spraying an aqueous suspension of the mixed extract powder followed by drying, was used to form the pellet for mice and rats. Eac feedstuff containing Rosa roxburghii, Artemisiae argyi folium and Bras oleracea var. capitata L. thus prepared was administered to each group male slc:SD rats, which consisted of 8 rats of 21 days old (body weigh 50 to 57 g), for one month and then each rat was weighed to calculate rate of body weight gain.

The composition of the basal diet for rats (pellet) was as shown in Ta D-9.

The body weights of the rats weighed during the test period in the gro to which Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. were administered were compared with those in the con group to examine the effect on the gain of body weight in both groups. t-test was conducted in the control group and the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

The results are given in Table D-10

TABLE D-9 Component Amt. (%) Casein 14.12 Corn starch 58.40 Glucose 12.83 Soybean oil 5.45 Cellulose 5.00 Minerals 4.00 Vitamins A D 0.10 Vitamin B 0.10

TABLE D-10 Average body weight and rate of body weight gain in each group Group 0 week 1 week 2 weeks weeks 4 weeks Test group 52.9 . 106.7 .+-. 162.4 .+-. 213.4 .+-. 258.2 .+-. (0.03%) 1.48 4.29 7.17 6.9 7.70 (1.00) (2.02) (3.06) (4.03) (4.86)* Test group 53.2 .+-. 107.6 .+ 162.6 .+-. 216.3 .+-. 258.5 .+-. (0.1%) 1.83 3.77 7.28 9.41 10.96 (1.0 (2.02) (3.06) (4.07) (4.88)* Test group 53.7 .+-. 107.6 .+-. 166.7 .+- 221.4 .+-. 270.2 .+-. (0.3%) 2.65 3.23 6.09 10.61 12.53 (1.00) (2.00) (3.10) (4.12) (5.03)** Control 53.8 .+-. 102.9 .+-. 157.3 .+-. 204.5 .

241.9 .+-. group 1.38 5.23 9.91 13.41 17.08 (1.00) (1.91) (2.92) (3.80 (4.50)

After the administration of Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., an increment in the rate of body weight gain of 0.23 to 0.53 was recognized depending on the dose, as compared with the control group.

Example D-6

The tests were conducted twice by using groups of Dekalb-TX chickens o 182 days old (average body weight: 1.5 kg). Each group consisted of 8 chickens. The average results are given in Table D-11 and D-12. In the test, the chickens were divided into three groups, i.e., a group to wh 0.03% of the mixed powder of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered, a group to which of the mixed powder was administered, and the control group. The feedi was conducted for a period of 18 days.

After the completion of the feeding, body weight and egg weight determination, egg quality test and eggshell strength determination (w an eggshell strength meter) were conducted. Further, the feed conversi ratio (feedstuff intake/gain of body weight) was calculated.

The results are given in Tables D-11 and D-12.

TABLE D-11

Group	Egg prodn. rate	Egg weight/day (g/chicken .multidot. day)	Feed conversion ratio
Test group	79.7%	47.3	2.14
(0.0 Test group	79.3%	46.6	2.28
(0.1%) Control group	74.2%	44.2	2.34

Note) Egg weight/day indicates total weight of eggs laid by a chicken a day

TABLE D-12

Group	Eggshell strength (kg/cm.sup.2)	Eggshell thickness (mm)	Eggshell (wt. %)
Test group	3.40	0.358	10.6
(0.0 Test group	3.16	0.359	10.4
(0.1%) Control group	3.12	0.374	10.5

It will be apparent from Table D-11 that the egg production rate, egg weight and feed conversion ratio were increased more remarkably in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capirate L. had been administered than those in the cont group.

It will be apparent from Table D-12 that as compared with the thicknes the eggshell, the eggshell strength was more increased in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. had been administered than that in the control group. The results promise the prevention of egg cracking.

One embodiment of the present invention provides a medicinal agent or animal feedstuff for accelerating growth of an animal which comprises roxburghii alone or Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. to be administered to animals directly or as additives to be incorporated into a basal diet so as to improve the bo weight gain, survival rate and feed conversion ratio of an animal; and

another embodiment of the present invention provides a medicinal agent improving an egg production rate, egg weight, egg quality or eggshell strength of animals. Since Rosa roxburghii, Artemisiae argyi folium an Brassica oleracea var. capitata L. are used, a high degree of safety i afforded and no environmental pollution is caused. Further, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat are available at low costs and are excellent as a medicinal agent or animal feedstuff for accelerating growth of an animal and a medicinal agent for improving an egg production rate, egg weight, egg quality or eggshell strength of an animal and have a high storageability.

The invention being thus described, it will be obvious that the same m be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intend to be included within the scope of the following claims.

CLAIMS:

What we claim is:

1. A method for immunopotentiating and protecting an animal from an infection caused by Escherichia coli, which comprises administering a pharmaceutically effective amount of a mixture of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the animal.

2. The method of claim 1, wherein said infection is selected from the group consisting of a respiratory infection, sepsis and a urinary infection.

3. The method for immunopotentiating and protecting from an infection according to claim 1, wherein the mixture is an extract thereof.

4. The method for immunopotentiating and protecting from an infection according to claim 1, wherein the animal is a mammal.

5. The method for immunopotentiating and protecting from an infection according to claim 4, wherein the mammal is a human.

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L21: Entry 1 of 1 File: USPT Apr 29, 1997

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DOCUMENT-IDENTIFIER: US 5624671 A

TITLE: Method for increasing egg production rate, egg weight or eggshe strength by administering a composition containing the plants Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

DATE-ISSUED: April 29, 1997

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APPL-NO: 8/ 438494
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PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

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ART-UNIT: 188

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ABSTRACT:

A pharmaceutical composition or feed, which is useful for immunopotentiating and protecting an animal from infectious diseases, regulating a function of the digestive tract, improving antibiotic absorption, accelerating growth of an animal or improving egg producti rate, egg weight, egg quality or eggshell strength of an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier.

6 Claims, 0 Drawing figures
Exemplary Claim Number: 1

BRIEF SUMMARY:

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a medicinal agent or food which potentiates the immune system of an animal, including a human being, t thereby protect the animal from infection, and a feed or feedstuff hav an immunopotentiating activity.

The present invention also relates to a medicinal agent or food for regulating a function of the digestive tract or gastrointestine of an animal, including a human being, and a feed or feedstuff having the activity of regulating the function of the digestive tract or gastrointestine of an animal.

Further, the present invention relates to a medicinal agent for improv antibiotic absorption by an animal, including a human being, and a fee feedstuff for improving antibiotic absorption by an animal.

Furthermore, the present invention relates to a medicinal agent for accelerating animal growth or for improving an egg production rate, eg weight, egg quality or eggshell strength of an animal and a feed or feedstuff having the activity of accelerating an animal growth or the activity of improving an egg production rate, egg weight, egg quality eggshell strength of an animal.

2. Description of the Related Art

With the recent progress in immunology, it has come to be thought that various maladies and infectious diseases of an animal, including a hum being, are caused by a weakening or deficiency in the immune system of animal.

For example, a human being frequently suffers from a weakening or deficiency in his immune system because of bronchial asthma, allergic diseases, articular rheumatism, autoimmune diseases, nutritional disorders, surgical operation, aging, cancer, organ transplantation, pregnancy or the like, resulting in the complication of a disease such respiratory infections, sepsis or urinary infections.

Up to this time, various antibiotics have been administered to patient with such maladies or infectious diseases. Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandr and aquaculture in order to raise livestock, poultry or fish efficient and in such raising, it has been also a practice to administer a high of an antibiotic.

The repeated administration of an antibiotic for a long period causes generation of antibiotic resistant bacteria to lower the effect of the antibiotic. Further, hospital infection has also become a significant problem. Under these circumstances, it has been expected to develop a preventive and therapeutic agent which can potentiate the immune syste while reducing the dosage of an antibiotic.

Further, the overcrowded raising employed in the fields of animal

husbandry and aquaculture has a problem in that various infectious diseases frequently break out because of stress or juvenile immunodeficiency. Furthermore, when a high dose of an antibiotic is administered as a countermeasure against the problem, there occur othe problems that the antibiotic is not completely consumed and antibiotic resistant bacteria propagate in the environment.

Recently, animals, including human beings, have frequently suffered fr various gastrointestinal diseases which are caused by a lowering or deficiency in the immune system, stress, dyspepsia or the like, and mo of which are accompanied with diarrhea.

For example, a human being becomes susceptible to an infectious diseas the digestive tract as his resistance lowers, and representative examp of the infectious disease include bacterial, viral and parasitic diarrheas. Further, the above gastrointestinal diseases also include a diarrheas caused by food poisoning and food allergy and chronic diarrh caused by a disorder of digestion and absorption, excess gut hormone a colic diseases.

It has been the practice to administer an intestinal depressomotor for intestines, an astringent, an irritant-absorbing agent, a torpent for enteric mucous membranes or various antibiotics against these gastrointestinal diseases.

Meanwhile, large-scale or overcrowded raising has been employed in the fields of animal husbandry and aquaculture to raise livestock, poultry fish efficiently. In such raising, it has been a practice to administe the above therapeutic agents for the treatment of diarrhea caused by stress or dyspepsia. Particularly, a large amount of an antibiotic has been used for the prevention of infectious diseases.

The administration of the above depressomotor or astringent is essenti a nosotropic means, while that of an antibiotic is an etiotropic one. However, the repeated administration of an antibiotic for the preventi of infectious diseases has a problem that the preventive effect is low owing to the generation of antibiotic-resistant bacteria.

Under these circumstances, it has been expected to develop a novel preventive and therapeutic agent which can regulate gastrointestinal functions themselves and is safe.

Up to this time, various antibiotics have been administered to patient with various maladies or infectious diseases. Meanwhile, large-scale o overcrowded raising has been employed in the fields of animal husbandr and aquaculture to raise livestock, poultries or fish efficiently. In raising, it has been a practice to administer a high dose of an antibiotic.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic accumulates in the body of an an to affect the body and that the administration of a more potent antibi becomes necessary because of the generation of antibiotic-resistant bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. Under these circumstances, i has been expected that the dose of the antibiotic to be administered i

reduced. In order to reduce the dose of the antibiotic, it has been believed effective that the absorption of the antibiotic through the digestive tract should be enhanced to attain an effect equal or superi to that attained by the administration thereof in a high dose, even wh the antibiotic is administered in a low dose. However, no substance wh can improve the absorption of an antibiotic has been found as yet.

In preparing animal feed, various attempts have been widely made at improving the feeding efficiency for animals and also at accelerating growth thereof by adding various antibiotics to the feed, incorporatin increased amount of proteins into the feed, changing the feeding metho improving the dosage form of the feed.

With respect to the use of an antibiotic, however, there have been poi out problems such that the antibiotic remains or accumulates in the bo of an animal to affect the body and that the administration of a more potent antibiotic becomes necessary because of the generation of resis bacteria. Further, the administration of an antibiotic to an animal is problematic also in that the environment is polluted with the antibiot contained in the excrement of the animal. In addition, the effects obtained by varying the feeding method and the dosage form of the feed limited. Under these circumstances, it is necessary to develop a safe less problematic animal growth accelerator, feed and improver for the production rate, egg weight, egg quality or eggshell strength of anima

DISCLOSURE OF THE INVENTION

SUMMARY OF THE INVENTION

In view of the above problems, the present inventors have extensively studied for many years and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are useful for overcoming the problems. The present invention has been accomplished o the basis of this finding.

Thus, the present invention provides:

(1) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier:

(2) a pharmaceutical composition comprising a pharmaceutically effecti amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat L.;

(3) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L.;

(4) a feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. and a basal diet;

(5) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and

Brassica oleracea var. capitata L. to an animal; and

(6) a method for feeding a feedstuff comprising a substance selected f the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a basal diet to an animal.

In view of the above problems with respect to the use of antibiotics, present inventors have extensively studied for many years on protectiv agents which are safe for animals and have found that Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. have an immunopotentiating activity. The present invention has been accomplish on the basis of this finding.

Thus, the present invention provides;

(7) a method for immunopotentiating and protecting from infectious diseases, which comprises administering a pharmacologically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat to an animal;

(8) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for immunopotentiating and protecting from infectious diseases;

(9) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for immunopotentiating and protecting from infectious diseases in an animal;

(10) a pharmaceutical composition for immunopotentiating and protectin from infectious diseases in an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(11) a medicinal agent for immunopotentiating and protecting from infectious diseases of an animal, comprising a substance selected from group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L and a pharmaceutically acceptable carrier; an

(12) a feedstuff for an animal, which is useful for immunopotentiating protecting from infectious diseases in an animal, comprising a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L..

In view of the above problem, the present inventors have extensively studied for many years regulating agents for the digestive tract which safe for human beings and animals, and have found that Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. have th activity of regulating gastrointestinal functions. The present inventi has been accomplished on the basis of this finding.

Thus, the present invention provides;

(13) a method for regulating the digestive tract, which comprises

administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to an animal;

(14) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for regulating the digestive tr

(15) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for regulating the digestive tract of an animal;

(16) a pharmaceutical composition for regulating the digestive tract o animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(17) a medicinal agent for regulating the digestive tract of an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(18) a feedstuff for an animal, which is useful for regulating the digestive tract of the animal, comprising a substance selected from th group consisting of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L..

To provide an absorbefacient which enables a reduction in the dose of antibiotic when administered together with the antibiotic, the present inventors have extensively studied to find out that the absorption of antibiotic can surprisingly be improved when Rosa roxburghii alone or or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. are administered simultaneously with the antibiotic or before or after the administrati of the antibiotic.

Thus, the present invention provides;

(19) a method for improving antibiotic absorption, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to an animal;

(20) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine an animal for improving its antibiotic absorption;

(21) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving antibiotic absorption in an animal;

(22) a pharmaceutical composition for improving antibiotic absorption an animal, comprising a pharmaceutically effective amount of a substan selected from the group consisting of Rosa roxburghii, Artemisiae argy

folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(23) a medicinal agent for improving antibiotic absorption in an anima comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier; and

(24) a feedstuff for an animal, which is useful for improving antibiot absorption in the animal, comprising a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L..

To provide a feedstuff free from the above-mentioned defects of an ordinary feedstuff and a method of administering the feedstuff to anim the present inventors have extensively studied. As a result, they have found that the growth of animals, including fetuses, is surprisingly accelerated by administering Rosa roxburghii alone or two or more memb selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. to them. The inventors have further found th an improvement in the egg production rate, egg weight, egg quality or eggshell strength of birds and fish is also accelerated by them.

Thus, the present invention provides;

(25) a method for accelerating growth of an animal, which comprises administering a pharmacologically effective amount of a substance sele from the group consisting of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. to the animal;

(26) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine for an animal for accelerating growth of the animal;

(27) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for accelerating growth of an animal;

(28) a pharmaceutical composition for accelerating the growth of an animal, comprising a pharmaceutically effective amount of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(29) a medicinal agent for accelerating the growth of an animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat and a pharmaceutically acceptable carrier;

(30) a feedstuff for an animal, which is useful for accelerating the growth of the animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L.;

(31) a method for improving an egg production rate, egg weight, egg quality or eggshell strength of an animal, which comprises administeri

pharmacologically effective amount of a substance selected from the gr consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the animal;

(32) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for preparing a medicine of an animal for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal;

(33) a use of a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat for improving an egg production rate, egg weight, egg quality or eggsh strength of an animal;

(34) a pharmaceutical composition for improving an egg production rate egg weight, egg quality or eggshell strength of an animal, comprising pharmaceutically effective amount of a substance selected from the gro consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier;

(35) a medicinal agent for improving an egg production rate, egg weigh egg quality or eggshell strength of an animal, comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argy folium and Brassica oleracea var. capitata L. and a pharmaceutically acceptable carrier; and

(36) a feedstuff for an animal, which is useful for improving an egg production rate, egg weight, egg quality or eggshell strength of the animal, comprising a substance selected from the group consisting of R roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat L..

Further scope and applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific exampl while indicating preferred embodiments of the invention, are given by of illustration only, since various changes and modifications within t spirit and scope of the invention will become apparent to those skille the art from this detailed description.

DETAILED DESCRIPTION OF THE INVENTION

Rosa roxburghii is a perennial shrub of the family Rosaceae and is nat to Guizhou in China and its fruit has been used as the material of jui jam or liquor. The fruit of Rosa roxburghii has been known to have a pharmacological activity and is useful as an antiulcer agent by virtue its cancer-preventing, cholesterol level-lowering and antistress activities.

Artemisiae argyi folium is a plant of the family Compositae and has be known to be useful as an antidiarrheal or antiabdominalgia agent, a hemostatic or the like. Further, this plant has been known to exhibit low antimicrobial activity only against Gram-positive bacteria. Artemi argyi folium includes, for example, Artemisia princeps Pampanini, Artemisia mongolia Fischer, Artemisia argyi LEVL. et VANT., and Artemi lavandulaefolia DC.

Brassica oleracea var. capitata L. is a plant of the family Cruciferae has been used as food.

The Rosa roxburghii to be used in the present invention is not particularly limited in form, but may have any form so far as it conta the essences of Rosa roxburghii. Generally, the fruit of Rosa roxburgh may be used in its raw state or as a dry powder prepared by convention means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

The Artemisiae argyi folium and Brassica oleracea var. capitata L. to used in the present invention are not particularly limited in form, bu may have any form so far as it contains the essences thereof. Generall the leaf of Artemisiae argyi folium or Brassica oleracea var. capitata may be used in a raw state or as a dry powder prepared by a convention means prior to use, or an extract prepared by using water, an organic solvent or a mixture of both as an extractant.

An extract from the above leaves can be prepared by, e.g., a process w comprises immersing 1 part by weight of the raw material in 5 parts by weight of water, boiling the obtained mixture under heating for 30 min to conduct extraction, filtering the resulting system, and concentrati the obtained filtrate to 3.6 parts by weight. The obtained extract may powdered by spray drying, freeze drying, vacuum drying (vacuum concentration) of the like.

When an organic solvent is used for extraction, methanol, ethanol, n-propanol, n-butanol, acetone, ethyl acetate, ether, methylene chlori chloroform, benzene, carbon tetrachloride and petroleum ether are preferable. These organic solvents may be used alone or as a mixture o two or more of them.

The extracts thus produced may be used as such or may be concentrated, diluted or freed from the solvent prior to use.

The extract of Rosa roxburghii to be used in the present invention may one commercially available under the trade name of "Rosa roxburghii extract powder MF", which is a product of Maruzen Seiyaku K. K. compri 30% of an extract of Rosa roxburghii and 70% of dextrin.

In the present invention, at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. is(are) used.

When Rosa roxburghii and Artemisiae argyi folium are used in the prese invention, the ratio between them is not particularly limited. General Artemisiae argyi folium is used, in terms of raw leaf, that is, when i prescribed as the weight of raw leaf, in an amount of 0.25 to 400 part weight, preferably 0.5 to 200 parts by weight, still preferably 1 to 1 parts by weight, based on 1 part by weight of the extract of Rosa roxburghii.

When both Artemisiae argyi folium and Brassica oleracea var. capitata are used together with Rosa roxburghii, the amounts thereof are not particularly limited. Generally, Artemisiae argyi folium and Brassica oleracea var. capitata L. are used in amounts of 0.25 to 400 parts by weight and 0.5 to 800 parts by weight, respectively, in terms of their respective raw leaf, based on 1 part by weight of the extract of Rosa

roxburghii. It is preferable that Artemisiae argyi folium and Brassica oleracea var. capitata L. be used in amounts of 0.5 to 200 parts by we and 1 to 400 parts by weight respectively, still preferably in amounts 1 to 100 parts by weight and 5 to 200 parts by weight respectively.

The pharmaceutical composition or the medicinal agent of the present invention may be administered, with the purpose of the prevention of diseases, as a food having a regulating effect on a living body, i.e., so-called functional food, which can be prepared by adding this composition or agent to food.

When the pharmaceutical composition or the medicinal agent of the pres invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used as a medicine or so-called health food, it may be in the form tablet, granule, powder, capsule or syrup. The pharmaceutical composit or the medicinal agent is prepared by mixing the members with a conventional filler or carrier, binder, lubricant or the like and trea the obtained mixture in the conventional manner.

When the pharmaceutical composition or the medicinal agent of the pres invention comprising one or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat is used for an animal, such as a mammal, a bird and a fish, especially a livestock, the dosage form thereof is not particularly limited. For example, it may be administered to livestock in a state mixed with a b diet (or feed or feedstuff). That is, this composition or agent may be mixed with a basal diet (or feed or feedstuff) just before using or ma premixed with a basal diet (or feed or feedstuff). In other words, the feedstuff for an animal comprising a substance selected from the group consisting of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be administered an animal as a feed having a biophylactic and regulating function.

The arbitrary basal diet for animals, which is used for preparing the stuff according to the present invention, is not particularly limited. Examples of the raw materials constituting the basal diet include grai such as corn, milo and wheat flour, brans such as defatted rice bran a wheat bran, animal substances such as fish meal and skim milk, vegetab oil cake such as soybean oil cake, and additives such as calcium carbonate, calcium phosphate, common salt, vitamin B.sub.2, DL-methion choline chloride, manganese sulfate, dry iron sulfate, calcium iodate, copper sulfate, dry zinc sulfate and sodium saccharin. The basal diet be prepared by blending some members selected from among these materia The formulation of the basal diet varies depending upon the animal to which the diet is administered.

The improved feed of the present invention, i.e., the feedstuff contai at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. can be administered to various livestock, poultries, pets and fish. The livestock includes pig, cattle, horse, g sheep and rabbit; the poultry include chicken, Japanese quail, turkey duck; the pets include dog and cat; the fish include yellowtail, sea bream, flatfish, globefish, hardtail, amberjack, salmon, carp, eel, sweetfish, trout and char; and lobsters.

Needless to say, the pharmaceutical composition, the medicinal agent a

the feedstuff of the present invention are non-toxic.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for immunopotentiating and protecting from infectious diseases.

In this case, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be used alone or as a combination of two more of them. In other words, the combination of Rosa roxburghii with Artemisiae argyi folium, that of Rosa roxburghii with Brassica olerace var. capitata L., that of Artemisiae argyi folium with Brassica olerac var. capitata L., and that of Rosa roxburghii with Artemisiae argyi fo and Brassica oleracea var. capitata L. can be used.

Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. exhibit an immunopotentiating and protective activity even when used each alone. However, the use of a combination of two or more them surprisingly exhibits an immunopotentiating and protective activi which is higher than that of the use of each of them.

The pharmaceutical composition or the medicinal agent of the present invention can safely and effectively potentiate the immune function of livestock such as cattle, pig or horse, a poultry such as chicken or Japanese quail, fish such as young yellowtail, sea bream, eel, trout, or goldfish, a pet such as dog or cat, or a human being to protect the animal or the like from various infectious diseases, which is one of m objects of the present invention.

The term "immunopotentiation" used in this specification means "potentiation of the immune function of an animal such as a human bein mammal, fish or the like".

The pharmaceutical composition or the medicinal agent of the present invention have the effect of enhancing the immune function of an anima including a human being, and serves as a preventive and therapeutic pharmaceutical composition or agent for various maladies and infectiou diseases by virtue of this effect, so that the diseases against which composition or agent is efficacious are not particularly limited. For example, it is efficacious against, e.g., articular rheumatism, autoim diseases, bronchial asthma, nutritional disorders, surgical operation, diseases of old age and various infectious diseases such as respirator infection, sepsis and urinary infection with respect to a human being.

With respect to animals other than humans, this composition or agent i efficacious against scours, epizootic pneumonia, atrophic rhinitis and infectious enterogastritis of a pig, pneumonia and Marek's disease of chicken, scours, pneumonia and mastitis of cattle, and AIDS and leukem of a pet.

Further, with respect to fish, the infectious disease against which th composition or agent of the present invention is efficacious is not particularly limited and includes bacterial diseases such as streptococcosis and nodosity, and viral diseases.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 25 mg or above, preferably 50 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for regulating a function of the digestive tract.

In this case, Rosa roxburghii is preferably used as the essential component. The activity of regulating the function(s) of the digestive tract, i.e., the gastrointestinal function(s) regulating activity, of pharmaceutical composition or the medicinal agent is synergistically enhanced when the composition or agent further contains Artemisiae arg folium or Artemisiae argyi folium and Brassica oleracea var. capitata The pharmaceutical composition or the medicinal agent is also used as component of a feedstuff, and the feedstuff containing the pharmaceuti composition or the medicinal agent also exhibit the above-described gastrointestinal function regulating activity.

The pharmaceutical composition or the medicinal agent of the present invention can efficaciously and safely regulate the function(s) of the digestive tract of livestock such as cattle, pig or horse, poultry suc chicken or Japanese quail, fish such as young yellowtail, sea bream, e trout, carp or goldfish, a pet such as a dog or cat, or humans, which one of the main objects of the present invention.

The term "digestive tract" to be used in this specification refers to organs ranging from the mouth to the anus, particularly to the stomach duodenum, small intestine, large intestine and rectum.

The term "function(s) of the digestive tract" or "gastrointestinal function(s)" used in this specification means digestion, absorption an digestive motion such as peristalsis. The pharmaceutical composition o the medicinal agent for the digestive tract according to the present invention is useful as a therapeutic and preventive pharmaceutical composition or agent for diarrhea when it acts on the lower part of th digestive tract, such as the large intestine or rectum, while it is efficacious in alleviating a sharp pain and in moderating gastric empt and borborygmus when it acts on the upper part thereof, such as the stomach or duodenum.

When the pharmaceutical composition or the medicinal agent for regulat the function(s) of the digestive tract is used as a therapeutic and preventive pharmaceutical composition or agent for diarrhea, it is efficacious against various diarrheas which are not limited in cause a examples of the diarrhea include bacterial diarrhea such as salmonello viral diarrhea such as caused by adenovirus, parasitic diarrhea such a amebic dysentery, toxic diarrhea such as food and drug poisoning, alle diarrhea caused by, e.g., food allergy, functional diarrheas such as c diarrhea and neurotic diarrhea, diarrheas caused by the use of an antibiotic (such as one caused by microbial substitution and staphylococcal diarrhea), and chronic diarrheas caused by the disorder digestion and absorption, excess gut hormone and colic diseases.

With respect to chickens and pigs, the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is efficacio

against bacterial diarrhea such as caused by Escherichia coli or swine dysentery, viral diarrhea caused by TGE or rotavirus, or simple diarrh such as one caused by stress or dietetic diarrhea. Further, it is efficacious also against various diarrheas of fish.

In this case, the dose of Rosa roxburghii to be administered varies depending upon the dosage form and the subject animal, so that it is n particularly limited.

For example, an extract of Rosa roxburghii is administered to livestoc such as a pig in a dose of 20 mg or above, preferably 40 mg or above, still preferably 100 mg or above per kilogram of the body weight.

It will be described about the case that the pharmaceutical compositio the medicinal agent or the feedstuff of the present invention is used improving antibiotic absorption.

In this case, the pharmaceutical composition or the medicinal agent comprising Rosa roxburghii or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered simultaneously with an antibiotic or before or after the administration of an antibiotic. As pharmaceutical composition or the medicinal agent, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. may be administered by itself in a raw, dried or pulverized state, or a formulation may be administered. Alternatively, the pharmaceutical composition or the medicinal agent may be added to food or feed in a conventional manner. Namely, the feedstuff comprising a basal diet and least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. to the basal diet described above. The amount of Rosa roxburghii, or the combination, is preferably 0.001% by weight or abov still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff f improving antibiotic absorption according to the present invention may administered simultaneously with an antibiotic or, before or after the administration of an antibiotic. In any case, the effect of improving absorption of an antibiotic can be attained.

In this case, the dose of Rosa roxburghii or a combination of two or m members selected from among Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L. is not particularly limited but var depending upon the dosage form, the subject animal or the dose of the antibiotic.

For example, when the pharmaceutical composition or the medicinal agen for improving antibiotic absorption comprising two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. is administered to livestock such as a pig a powdered extract, the powdered extract is administered in an amount of part by weight or above, preferably 1 part by weight or above, still

preferably 3 parts by weight or above based on 1 part by weight of the antibiotic administered. When Rosa roxburghii is administered alone, t amount thereof may be the same as that described above.

It will next be described when the pharmaceutical composition, the medicinal agent or the feedstuff of the present invention is used for accelerating growth of an animal or improving an egg production rate, weight, egg quality or eggshell strength.

One of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstuff for accelerat growth of an animal, a novel pharmaceutical composition, medicinal age or feedstuff for improving the egg production ratio, egg weight, egg quality or eggshell strength of animals, and a method for administerin them to animals.

More specifically, one of the objects of the present invention is to provide a novel pharmaceutical composition, medicinal agent or feedstu which can accelerate an increase in the body weight and can improve th survival rate, feed conversion ratio of animals, and a novel pharmaceutical composition, medicinal agent or feedstuff which can imp the survival rate, egg production rate, egg weight, egg quality, eggsh strength and feed conversion ratio of animals.

The term "growth acceleration" or "accelerating growth of an animal" a used herein includes also growth improvement and growth acceleration o fetuses. The expression "improvement in the egg production rate, egg weight, egg quality and eggshell strength" means an improvement in the production rate, an increase in the egg weight, and improvements in th eggshell and egg quality.

In this case, Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., preferably a combination of three members described above, as the active ingredient is administered to animals. Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. can be administered directly to animals or they can b incorporated in the feedstuff or feed by an ordinary method. Namely, t feedstuff comprising a basal diet and at least one of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. of the present invention may be used.

The feedstuff of the present invention is prepared by adding Rosa roxburghii alone or a combination of two or more members selected from among Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. to the basal diet described above. The amount of Rosa roxburghii or the combination is preferably 0.001% by weight or above, still preferably 0.01% by weight or above in terms of the dried extrac thereof, i.e., as the weight of the dried extract thereof.

The pharmaceutical composition, the medicinal agent or the feedstuff accelerates the growth of animals, and improves the raising or feed conversion ratio. When it is administered to birds and fish, it result an improvement in the egg production rate, egg weight, egg quality or eggshell strength of them.

The dose of Rosa roxburghii is not particularly limited in this case,

since it varies depending on the dosage form thereof and the subject animal.

When Rosa roxburghii extract is administered to livestock, such as cat and pigs, the amount thereof is usually at least 100 mg, preferably at least 50 mg and still preferably at least 100 mg, based on 1 kilogram the body weight thereof.

DETAILED DESCRIPTION:

EXAMPLES

The present invention will now be described in more detail with refere to the following Examples which should not be considered to limit the scope of the present invention.

In the Examples, the description of the dose of each component, e.g., mg/kg p o." means oral administration in a dose of 10 mg per kilogram body weight. Further, the symbols "*", and "**" in the tables mean p<0 and p<0.01, respectively, in the X.sup.2 test.

The Rosa roxburghii used in Examples A-1, B-1 and B-2 is one commercia available under the trade name of "Rosa roxburghii extract powder MF", which is a product of Maruzen Seiyaku K. K. comprising 30% of an extra of Rosa roxburghii and 70% dextrin. The dose of Rosa roxburghii is expressed in terms of the weight of this extract powder. The dose of Artemisiae argyi folium is expressed in terms of the weight of an extr thereof having 4-fold concentration with respect to its normal weight, while the dose of Brassica oleracea var. capitata L. is expressed in t of the weight of an extract thereof having a 9-fold concentration with respect to its normal weight.

EXAMPLE A-1

As shown in Tables A-1 and A-2, Rosa roxburghii, Artemisiae argyi foli and Brassica oleracea var. capitata L. were each orally administered a (Table A-1), or as a mixture of two or more of them (Table A-2), to te SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 to 33 g) in doses of to 2000 mg/kg, while physiological saline was orally administered ther as a control. After 24 hours, clinically available Escherichia coli (5.0.times.10.sup.7 CFU/mouse, 0.2 ml) was intravenously inoculated in each mouse to determine the survival rate based on the number of viabl mice after 7 days from the infection. The results are given in Tables and A-2.

TABLE A-1 Survival Sample rate x.sup.2 test control (physiolog saline p.o.) 0 Artemisiae argyi folium 500 mg/Kg p.o. 20 Artemisiae ar folium 1000 mg/Kg p.o. 30 Artemisiae argyi folium 2000 mg/Kg p.o. 50 * Brassica oleracea var. capitata L. 10 500 mg/Kg p.o. Brassica oleracea var. capitata L. 30 1000 mg/Kg p.o. Brassica oleracea var. capitata L. * 2000 mg/Kg p.o. Rosa roxburghii 500 mg/Kg p.o. 20 Rosa roxburghii 10 mg/Kg p.o. 30 Rosa roxburghii 2000 mg/Kg p.o. 50 *

TABLE A-2

Sample	Survival rate (%)
x.sup.2 test	

control (physiological saline p.o.) 0 Artemisiae argyi folium 500 mg/K p.o. and 40 * Brassica oleracea var. capitata L. 500 mg/Kg p.o. Artemi argyi folium 1000 mg/Kg p.o. and 70 * Brassica oleracea var. capitata 1000 mg/Kg p.o. Artemisiae argyi folium 2000 mg/Kg p.o. and 100 ** Brassica oleracea var. capitata L. 2000 mg/Kg p.o. Rosa roxburghii 500 mg/Kg p.o. and 60 * Artemisiae argyi folium 500 mg/Kg p.o. Rosa roxbur 1000 mg/Kg p.o. and 90 ** Artemisiae argyi folium 1000 mg/Kg p.o. Rosa roxburghii 2000 mg/Kg p.o. and 100 ** Artemisiae argyi folium 2000 mg/ p.o. Rosa roxburghii 500 mg/Kg p.o., 70 * Artemisiae argyi folium 500 mg/Kg p.o. and Brassica oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxburghii 1000 mg/Kg p.o., 100 ** Artemisiae argyi folium 1000 mg/Kg and Brassica oleracea var. capitata L. 1000 mg/Kg p.o.

As shown in Table A-1, the survival rate increases depending upon the of Rosa roxburghii, Artemisiae argyi folium or Brassica oleracea var. capitata L., which reveals that these plants have a protective effect.

As shown in Table A-2, the simultaneous use of Rosa roxburghii with Artemisiae argyi folium, that of Artemisiae argyi folium with Brassica oleracea var. capitata L. and that of Rosa roxburghii with Artemisiae argyi folium and Brassica oleracea var. capitata L. exhibit the protec effect exceeding the arithmetic sum of the respective effects of these plants. That is, the above simultaneous use exhibits a significant synergistic effect, being of great value.

The above test in Example A-1 reveals that the medicinal agent for immunopotentiating and protecting from infectious diseases of the pres invention has an excellent protective activity against Gram-negative bacteria, which suggests that the agent of the present invention is no only an agent which exhibits a low antimicrobial activity only against Gram-positive bacteria, like Artemisiae argyi folium, but is also an a which potentiates the immune function itself. Accordingly, the agent o the present invention is effective in the prevention and treatment of various maladies and useful as a preventive and therapeutic agent for various infectious diseases or as a functional food or feed. Thus, the present invention is of great value.

EXAMPLE B-1

As shown in Table B-1, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were each orally administered to si SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) in a dose of 125 500 mg/kg, while physiological saline was orally administered thereto control. After 30 minutes, 1 ml of castor oil was further orally administered to the rats to determine the time which elapsed until the occurrence of diarrhea and the total amount of excrement given within hours of the administration. The antidiarrheal index of each case was calculated from these values according to the following formula 1 to evaluate the antidiarrheal activity. The measured values and the antidiarrheal index are given in Table B-1. ##EQU1##

TABLE B-1 Time until the Total

occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Artemisiae argyi 53.3 .+ 13.8 4.5 .+-. 0.83 2.06 folium 125 mg/Kg p.o. Artemisiae argyi 71.8 .+ 18.4 3.7 .+-. 1.09 3.38 folium 250 mg/Kg p.o. Artemisiae argyi 95.8 .+ 12.8 2.0 .+-. 0.68 8.33 folium 500 mg/Kg p.o. Brassica oleracea var. 4 .+-. 7.9 5.9 .+-. 1.16 1.36 capitata L. 125 mg/Kg p.o. Brassica olerac var. 49.5 .+-. 10.7 4.7 .+-. 1.14 1.83 capitata L. 250 mg/Kg p.o. Bras oleracea var. 51.2 .+-. 8.2 3.8 .+-. 1.21 2.34 capitata L. 500 mg/Kg p Rosa roxburghii 50.5 .+-. 10.0 4.2 .+-. 1.67 2.09 125 mg/Kg p.o. Rosa roxburghii 68.3 .+-. 6.4 3.7 .+-. 0.80 3.21 250 mg/Kg p.o. Rosa roxbur 77.8 .+-. 14.4 1.8 .+-. 0.70 7.52 500 mg/Kg p.o.

It was ascertained from the results given in Table B-1 that Artemisiae argyi folium, Rosa roxburghii and Brassica oleracea var. capitata L. h an antidiarrheal activity.

EXAMPLE B-2

As shown in Tables B-2 and B-3, two or more members selected from amon Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were orally administered to six SLC:SD male rats (age: 6 weeks, weight: 250 to 300 g) each in doses of 125 to 500 mg/kg, while physiological saline was orally administered thereto as a control. Aft 30 minutes, 1 ml of castor oil was further administered orally to the to determine the time elapsed until the occurrence of diarrhea and the total amount of the excrement given within 2 hours of the administrati The antidiarrheal index of each case was calculated from these values according to the above formula 1 to evaluate the antidiarrheal activit The measured values and the antidiarrheal index are given in Tables B- and B-3.

TABLE B-2 Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Artemisiae argyi 62.7 .+ 13.4 4.2 .+-. 1.02 2.60 folium 125 mg/Kg p.o. and Brassica oleracea va capitata L. 125 mg/Kg p.o. Artemisiae argyi 83.5 .+-. 15.3 3.2 .+-. 1. 4.54 folium 250 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 mg/Kg p.o. Artemisiae argyi 99.3 .+-. 13.2 1.8 .+-. 0.70 9.59 folium 5 mg/Kg p.o. and Brassica oleracea var. capitata L. 500 mg/Kg p.o. Rosa roxburghii 78.4 .+-. 8.6 3.5 .+-. 1.73 3.89 125 mg/Kg p.o. and Artemis argyi folium 125 mg/Kg p.o. Rosa roxburghii 90.3 .+-. 12.4 2.6 .+-. 1. 6.04 250 mg/Kg p.o. Artemisiae argyi folium 250 mg/Kg p.o. Rosa roxbur 101.8 .+-. 14.3 1.6 .+-. 1.58 11.06 500 mg/Kg p.o. Artemisiae argyi fo 500 mg/Kg p.o.

TABLE B-3 Time until the Total occurrence amount of Anti- of diarrhea excrement diarrheal Sample (min (g) index control (physiologica 38.5 .+-. 5.9 6.7 .+-. 0.67 1.00 saline p.o.) Rosa roxburghii 91.5 .+- 17.4 3.5 .+-. 1.73 6.37 125 mg/Kg p.o. Artemisiae argyi folium 125 mg/ p.o. and Brassica oleracea var. capitata L. 125 mg/Kg p.o. Rosa roxbur 102.0 .+-. 13.0 1.8 .+-. 0.70 9.85 250 mg/Kg p.o. Artemisiae argyi fol 250 mg/Kg p.o. and Brassica oleracea var. capitata L. 250 mg/Kg p.o. R roxburghii 110.8 .+-. 14.0 1.3 .+-. 1.16 14.82 500 mg/Kg p.o. Artemisi

argyi folium 500 mg/Kg p.o. and Brassica oleracea var. capitata L. 500 mg/Kg p.o.

It has been ascertained from the results given in Tables B-1 and B-2 t the simultaneous use of Rosa roxburghii with Artemisiae argyi folium exhibits a synergistic antidiarrheal activity, while it has been ascertained from the results given in Tables B-1 and B-3 that the simultaneous use of Rosa roxburghii with Artemisiae argyi folium and Brassica oleracea var. capitata L. also exhibits a synergistic antidiarrheal activity.

The above test in Examples B-1 and B-2 reveals that the medicinal agen for regulating a function of a digestive tract according to the presen invention has an excellent antidiarrheal activity. Accordingly, the medicinal agent for regulating a function of a digestive tract of the present invention is effective in the prevention and treatment of diar caused by various diseases, and is useful as a preventive or therapeut agent for diarrhea or a functional food or feed. Thus, the present invention is of great value.

The mixture of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. used in the following Examples C-1, C-2, D-1 D-6 were prepared as follows:

Raw leaves (3 kg) of Artemisiae argyi folium were immersed in 15 l of water and the obtained mixture was boiled for 30 minutes to conduct extraction. The resulting mixture was filtered to recover a filtrate. filtrate was concentrated to 1.8 kg by heating to give an extract. Thi extract was powdered by spray drying to give a dry powder of the extra of Artemisiae argyi folium. Similarly, Brassica oleracea var. capitata was also converted into a dry powder of the extract thereof. 1500 g of Rosa roxburghii extract powder MF (a product of Maruzen Seiyaku K. K. comprising 30% of an extract of Rosa roxburghii and 70% of dextrin) wa mixed with 675 g of the above dry powder of the extract of Artemisiae argyi folium and 225 g of the above dry powder of the extract of Brass oleracea var. capitata L. to give 2400 g of a mixed powder (a weight r of Rosa roxburghii:Artemisiae argyi folium:Brassica oleracea var. capi L. being 2:3:1).

EXAMPLE C-1

The above mixture of the dry powders or each of the dry powders was or administered to four SLC:ICR male mice (age: 5 to 6 weeks, weight: 25 33 g) in a dose given in Table C-1 together with 10 mg per kilogram of body weight of amoxicillin (hereinafter referred to simply as "AMPC") an antibiotic. After 2 hours, blood was gathered from the mice to determine the serum AMPC concentrations, which were compared with thos mice to which AMPC alone had been administered. Each serum AMPC concentration was determined by using a strain of Sarcina luteas (Gram-positive and AMPC-sensitive bacterium) according to the disk met (this method of measurement was also employed in Example C-2).

The results are given in Table C-1.

TABLE C-1 Serum AMPC concn. .mu.g/ml (figures in parentheses being ratio thereof to the concn. of control AMPC 10 mg/kg (control)

2.12 .+-. 1.14 (1.00) AMPC 10 mg/kg + a mixed 2.70 .+-. 1.22 (1.27) po of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 10 mg/kg AMPC 10 mg/kg + a mixed 3.04 .+-. 1.22 (1.43) pow of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 30 mg/kg AMPC 10 mg/kg + a mixed 3.11 .+-. 1.97 (1.47) pow of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 90 mg/kg AMPC 10 mg/kg + a mixed 3.53 .+-. 1.93 (1.67)* po of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. 190 mg/kg AMPC 10 mg/kg + a mixed 5.62 .+-. 0.57 (2.65)** powder of Rosa roxburghii, Artemisiae argyi folium and Brassica olerac var. capitata L. 2000 mg/kg AMPC 10 mg/kg + Rosa 4.87 .+-. 1.81 (2.30) roxburghii 10 mg/kg AMPC 10 mg/kg + Artemisiae 2.95 .+-. 1.13 (1.39) a folium 10 mg/kg AMPC 10 mg/kg + Brassica 2.20 .+-. 1.11 (1.04) olerace var. capitata L. 10 mg/kg

As shown in Table C-1, the group of the mice to which AMPC and Rosa roxburghii had been administered and the groups of the mice to which A Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. had been administered were apparently improved in the absorption of AMPC depending upon the dose thereof as compared with th group of the mice to which AMPC alone had been administered.

EXAMPLE C-2

AMPC (10 mg/kg) alone or the mixture of AMPC (10 mg/kg) with the mixed powder (30 mg/kg) comprising Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered to six SPF male pi (age: 1 month, weight: about 15 kg) mixed with a basal diet to gather blood from the pigs after 0.5, 1, 2, 3 and 6 hours. The serum AMPC concentrations of the pigs to which AMPC and the mixed dry powder had administered were determined and compared with those of the pigs to wh AMPC alone had been administered.

The results are given in Table C-2.

The formulation of the above basal diet are given in Table C-3.

TABLE C-2

after 0.5 hr	after 1 hr	after 2 hrs	after 3 hrs	after 6 hrs
AMPC 10 mg/kg (control)	3.07 .+-. 1.55	6.03 .+-. 0.80	3.71 .+-. 0.63	2 .+-. 0.40
0.85 .+-. 0.75 AMPC 10 mg/kg + a mixed powder	6.03 .+-. 1.49	7.81 .+-. 1.49	5.85 .+-. 0.80	3.71 .+-. 1.41
1.74 .+-. 1.16 of Rosa roxburghii, Artemisiae argyi	(1.63)**	(1.30)*	(1.58)**	(1.77)* (2.05)*
folium and Brassica oleracea var. capitata L. 30 mg/kg				

Note) Serum AMPC concentration, .mu.g/ml The figures in parentheses ar the ratios of the serum AMPC concentration to that of the control.

TABLE C-3

Component	Amt. (%)	Initiation of Administration feeding to 5 weeks of age	Amt. (%)	5 to 7 weeks of age period
par wheat	33.8	20.0	glucose	9.0
5.0	sugar	3.0	--	wheat flour
--	20.0	yello corn	--	23.6
skimmilk powder	40.0	10.0	fish meal	3.0
5.0	soybean oil	c 3.0	9.0	Torula yeast
2.0	2.0	soybean oil	4.0	3.0
common salt	0.2	0.2	tricalcium phosphate	1.2
1.4	mineral mixture	0.2	0.2	vitamin mixture
0				

0.2 flavor, antibiotic and 0.4 0.4 other feed additives

As shown in Table C-2, the pigs to which AMPC and the mixed powder had been administered were apparently improved in the absorption of AMPC o a period of 0.5 to 6 hours after the administration as compared with t pigs to which AMPC alone had been administered.

The results of the above tests suggest that the medicinal agent for improving antibiotic absorption and the feedstuff according to the pre invention are so efficacious in improving the absorption of an antibio that the dose of the antibiotic can be reduced. Accordingly, the prese invention is of great value.

EXAMPLE D-1

40 sound pigs (castrated pigs of about 10 days old; 3.0 to 3.5 kg) wer divided into four groups, i.e., three groups each consisting of ten pi to which the mixed powder comprising Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and a control group consisting of ten pigs to which an ordinary basal diet f of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. was administered. A feedstuff enriched with the mixed powd of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. in amounts of 0.03, 0.1 or 0.3% by weight was administered the pigs of one of the three groups for 30 days. After 30 days, the in of the feedstuff and the gain of body weight were determined to calcul the rate of raising and the feed conversion ratio (feedstuff intake/ga of body weight). The results were compared with those of the control group.

The composition of the artificial milk-based basal diet for piglings w as shown in Table D-1.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th control group were compared with each other. The t-test was conducted the gain of body weight in the control group and the groups of the pre invention. Table D-2 shows the results.

TABLE D-1 Initiation of feeding 5 5 to 7 weeks Feeding period weeks of age of age Component Amt. (%) Amt.(%) Roast wheat 33.8 20.0 Glucose 9.0 5.0 Sugar 3.0 -- Wheat flour -- 20.0 Yellow corn -- 23.6 S milk powder 40.0 10.0 Fish meal 3.0 5.0 Soybean oil cake 3.0 9.0 Torul yeast 2.0 2.0 Soybean oil 4.0 3.0 Common salt 0.2 0.2 Tricalcium phosp 1.2 1.4 Mineral mixture 0.2 0.2 Vitamin mixture 0.2 0.2 Flavor, antibi and 0.4 0.4 other feed additives

TABLE D-2 Gain of Feedstuff bod Feed intake weight conversion (A) (B) ratio Rate of Group (kg/pig) (kg/pig) (A/B) raising Test gro 11.24 5.3 .+-. 1.33 2.12 88.8% (0.03%) ** Test group 11.79 6.3 .+-. 1. 1.87 93.0% (0.1%) ** Test group 12.32 5.7 .+-. 1.04 2.16 100% (0.3%) * Control 8.50 3.4 .+-. 1.15 2.50 81.9% group

The gain of body weight per pig in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the feed conversion ratio and the rate of raising were increased in the former group.

EXAMPLE D-2

18 bull Holstein calves of about 7 days old were divided into three groups, i.e., two groups each consisting of six calves to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and a control group consisting of six calves to whic neither of Rosa roxburghii, Artemisiae argyi folium and Brassica olera var. capitata L. was administered. The mixed powder of Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. was mix into a milk substitute for raising suckling calves and into a feedstuf containing a milk substitute (artificial milk) for raising suckling ca in an amount of 0.125 or 0.25% by weight based on the basal diet. The substitute or the feedstuff was repeatedly administered for 20 days. T dose of the mixed powder was 2.5 g/day or 5 g/day per calf. Each calf weighed at the beginning of the test and after the completion of the t (after 20 days) to calculate the gain of body weight and the rate of b weight gain per day.

The composition of the feedstuff containing the milk substitute for raising suckling calves was as shown in Table D-3.

The results of the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and th of the control group are compared with each other. The t-test was conducted in the control group and the groups of the present invention

Table D-4 shows the results.

TABLE D-3 _____ Component Amt. (%) _____ Skim milk powder 60.0 Dry whey Animal fat or oil 20.0 Fish soluble 4.0 Vitamin mixture 0.5 Mineral mixture 0.7 _____

TABLE D-4 _____ Gain of body Gain of weight weight Group (kg/calf) (kg/calf/day) _____ Test group 41.0 .+-. 7.45 ** 2. .+-. 0.29 ** 2.5 g/day Test group 42.5 .+-. 5.69 ** 2.13 .+-. 0.27 ** g/day Control 25.7. .+-. 8.32 1.29 .+-. 0.36 group _____

The gain of body weight per day in the groups to which Rosa roxburghii Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered was larger than that in the control group, and the rate o body weight gain was increased in the former group.

EXAMPLE D-3

80 pullet broilers (chunky) were divided into two groups, i.e., a grou consisting of 40 broilers to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and a control group consisting of 40 broilers to which neither of Rosa

roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat was administered.

The mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. was administered in an amount of 0.1% by wei based on the basal diet for broilers to the group, to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered, for 6 weeks. Each broiler was weighed at the beginn of the test and after 6 weeks. The average gain of body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered and that in the control gr were calculated.

The composition of the basal diet for broilers was as shown in Table D

The results of the group to which Rosa roxburghii, Artemisiae argyi fo and Brassica oleracea var. capitata L. were administered and those of control group are compared with each other. The x.sup.2 -test for the average gain of body weight was conducted in the control group and the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were administered.

Table D-6 shows the results.

TABLE D-5 Initiation of feeding to 5 5 to 6 to 3 weeks weeks of weeks of Feeding period of age age age Component Amt. (%) Amt. (%) Amt. (%)

Corn 50.45 55.30 55.34 Milo 10. 15.0 15.01 Soybean oil cake 18.0 13.0 13.01 Rapeseed oil cake -- 2.5 2 Fish meal 8.0 5.0 5.01 Fish soluble 2.0 -- -- Absorbent feed 3.0 -- -- Gluten meal Alfalfa meal 2.0 -- -- Torula yeast 1.0 -- -- Meat/bone me -- 3.0 3.0 Raw rice bran -- 2.0 2.0 Animal fat or oil 3.3 2.8 2.81 Com salt 0.25 0.25 0.25 Calcium carbonate 0.6 0.3 0.30 Dicalcium phosphate 0.5 0.5 Lysine -- -- -- Methionine 0.18 -- -- Vitamin mixture 0.1 0.1 Choline chloride 0.05 0.06 0.06 Mineral mixture 0.1 0.1 0.1 Flavor, antibiotic and 0.17 0.09 -- other feed additives

TABLE D-6 Av. body wt. at initiation Av. body wt. Av. gain of of feeding after 6 weeks body weig Group (g/broiler) (g/broiler) (g/broiler

Test group 43.8 .+-. 0.08 2065 8.7 2021.7 .+-. 8.6** (0.1%) Control group 43.6. .+-. 0.07 1879 .+-. 1 1835.4 .+-. 10.1

The increase in the average body weight in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was larger than that in the control group.

EXAMPLE D-4

12,000 young yellowtails having an average body weight of about 600 g divided into two groups, i.e., a group consisting of 6,000 young yellowtails to which Rosa roxburghii, Artemisiae argyi folium and Bras oleracea var. capitata L. were administered and a control group consis of 6,000 young yellowtails to which neither of Rosa roxburghii, Artemi argyi folium and Brassica oleracea var. capitata L. was administered.

mixed powder of Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. were mixed with a basal diet for young yellowtails (moist pellets) in an amount of 0.5% by weight based on th basal diet and the resultant mixture was administered to them at inter of three days for one month. The results were compared with those of t control group. The young yellowtails were raised in a crawl having a s of about 3 m.times.3 m.times.3 m. During the test period, the feedstuf was administered once a day in an amount of about 3% by weight based o the body weight a day.

The composition of the basal diet for young yellowtails was as shown i Table D-7.

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered and The death rate during the test period in the gro to which Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. were administered and that in the control group were compared with each other to evaluate the effect of improving the rate raising. The x.sup.2 -test was conducted in the control group and the group of the present invention. The results are given in Table D-8.

TABLE D-7

Component	Amt. (%)
Fish meal	56.0
Meat/bone meal	3
Soybean oil cake	5.0
Corn gluten meal	3.0
Torula yeast	2.0
Wheat flour	28.4
Vitamin mixture	1.0
Choline chloride	0.3
Inorg. mixture	1.0
Sodiu polyacrylate	0.3

TABLE D-8

Group	No. of samples	No. of died (fish)
Test group (0.1%)	6000	180 **
Control group	6000	750

The death rate during the test period in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat were administered was far smaller than that in the control group to pr the effect of improving the rate of raising.

Artemisiae argyi folium and Brassica oleracea var. capitata L. used in pellet for mice and rats, of a preparation prepared by spraying an aqu suspension of the mixed extract powder, followed by drying, was used t form the pellet for mice and rats. Each feedstuff containing Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat thus prepared was administered to each group of male slc:SD rats, whic consisted of 8 rats of 21 days old (body weight: 50 to 57 g), for one month and then each rat was weighed to calculate the rate of body weig gain.

The composition of the basal diet for rats (pellet) was as shown in Ta D-9.

The body weights of the rats weighed during the test period in the gro to which Rosa roxburghii, Artemisiae argyi folium and Brassica olerace var. capitata L. were administered were compared with those in the con group to examine the effect on the gain of body weight in both groups. t-test was conducted in the control group and the groups to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat

L..

The results are given in Table D-10.

TABLE D-9 Component Amt. (%) Casein 14.12 Corn starch 58.40 Glucose 12.83 Soybean oil 5.45 Cellulose 5.00 Minerals 4.00 Vitamins A D 0.10 Vitamin B 0.10

TABLE D-10

Average body weight (g) and rate of body weight gain in each group Gro week 1 week 2 weeks 3 weeks 4 weeks

Test group 52.9 .+-. 1.48 106.7 .+-. 4.29 162.4 .+-. 7.17 213.4 .+-. 6 258.2 .+-. 7.70 (0.03%) (1.00) (2.02) (3.06) (4.03) (4.86) * Test grou 53.2 .+-. 1.83 107.6 .+-. 3.77 162.6 .+-. 7.28 216.3 .+-. 9.41 258.5 . 10.96 (0.1%) (1.00) (2.02) (3.06) (4.07) (4.88) * Test group 53.7 .+-. 2.65 107.6 .+-. 3.23 166.7 .+-. 6.09 221.4 .+-. 10.61 270.2 .+-. 12.53 (0.3%) (1.00) (2.00) (3.10) (4.12) (5.03) ** Control group 53.8 .+-. 1 102.9 .+-. 5.23 157.3 .+-. 9.91 204.5 .+-. 13.41 241.9 .+-. 17.08 (1.0 (1.91) (2.92) (3.80) (4.50)

After the administration of Rosa roxburghii, Artemisiae argyi folium a Brassica oleracea var. capitata L., an increment in the rate of body weight gain of 0.23 to 0.53 was recognized depending on the dose, as compared with the control group.

EXAMPLE D-6

The tests were conducted twice by using groups of Dekalb-TX chickens o 182 days old (average body weight: 1.5 kg). Each group consisted of 8 chickens. The average results are given in Table D-11 and D-12 . In th test, the chickens were divided into three groups, i.e., a group to wh 0.03% of the mixed powder of Rosa roxburghii, Artemisiae argyi folium Brassica oleracea var. capitata L. was administered, a group to which of the mixed powder was administered, and the control group. The feedi was conducted for a period of 18 days.

After the completion of the feeding, body weight and egg weight determination, egg quality test and eggshell strength determination (w an eggshell strength meter) were conducted. Further, the feed conversi ratio (feedstuff intake/gain of body weight) was calculated.

The results are given in Tables D-11 and D-12.

TABLE D-11 Egg Feed prodn. Egg weight/day conversion Group rate (g/chicken.day) ratio Test group 79.7% 47.3 2.14 (0.0 Test group 79.3% 46.6 2.28 (0.1%) Control 74.2% 44.2 2.34 group Note) Egg weight/day indicates total weight of eggs laid by a chicken in a day.

TABLE D-12 Eggshell Eggshell strength thickness Eggshell Group (kg/cm.sup.2) (mm) (wt.%)

Test group 3.40 0.358 10.6 (0.0
Test group 3.16 0.359 10.4 (0.1%) Control 3.12 0.374 10.5 group

It will be apparent from Table D-11 that the egg production rate, egg weight and feed conversion ratio were increased more remarkably in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitata L. had been administered than those in the cont group.

It will be apparent from Table D-12 that as compared with the thicknes the eggshell, the eggshell strength was more increased in the group to which Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea v capitata L. had been administered than that in the control group. The results promise the prevention of egg cracking.

One embodiment of the present invention provides a medicinal agent or animal feedstuff for accelerating growth of an animal which comprises roxburghii alone or Rosa roxburghii, Artemisiae argyi folium and Brass oleracea var. capitata L. to be administered to animals directly or as additives to be incorporated into a basal diet so as to improve the bo weight gain, survival rate and feed conversion ratio of an animal; and another embodiment of the present invention provides a medicinal agent improving an egg production rate, egg weight, egg quality or eggshell strength of animals. Since Rosa roxburghii, Artemisiae argyi folium an Brassica oleracea var. capitata L. are used, a high degree of safety i afforded and no environmental pollution is caused. Further, Rosa roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat are available at low costs and are excellent as a medicinal agent or animal feedstuff for accelerating growth of an animal and a medicinal agent for improving an egg production rate, egg weight, egg quality or eggshell strength of an animal and have a high storageability.

The invention being thus described, it will be obvious that the same m be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intend to be included within the scope of the following claims.

CLAIMS:

What we claim is:

1. A method for increasing the egg production rate, egg weight or eggs strength of a bird, which comprises administering a pharmacologically effective amount of a composition comprising a mixture of the plants R roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat to said bird.

2. The method according to claim 1, wherein the bird is a chicken.

3. The method according to claim 1, wherein the composition is raw, in dried state or an extract.

4. The method according to claim 1, wherein the composition is in a dr state.

5. The method according to claim 1, wherein the composition is an extr

6. A method for increasing the egg production rate, egg weight or eggs strength of a fish, which comprises administering a pharmacologically effective amount of a composition comprising a mixture of the plants R roxburghii, Artemisiae argyi folium and Brassica oleracea var. capitat to said fish.